INCIDENTAL NOTICING AND EFL STUDENTS' SUBSEQUENT SECOND LANGUAGE LEARNING IN SYNCHRONOUS TEXT-BASED DISCUSSION: AN INVESTIGATION OF BOTH NES-NNES AND NNES-NNES DYADS

A Dissertation

by

WAN-TSAI KUNG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2009

Major Subject: Curriculum and Instruction

INCIDENTAL NOTICING AND EFL STUDENTS' SUBSEQUENT SECOND LANGUAGE LEARNING IN SYNCHRONOUS TEXT-BASED DISCUSSION: AN INVESTIGATION OF BOTH NES-NNES AND NNES-NNES DYADS

A Dissertation

by

WAN-TSAI KUNG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Chair of Committee,	Zohreh R. Eslami
Committee Members,	Lynn M. Burlbaw
	Shari Kendall
	Gwendolyn C. Webb-Johnson
Head of Department,	Dennie Smith

August 2009

Major Subject: Curriculum and Instruction

ABSTRACT

Incidental Noticing and EFL Students' Subsequent Second Language Learning in Synchronous Text-based Discussion: An Investigation of Both NES-NNES and NNES-NNES Dyads.

(August 2009)

Wan-Tsai Kung, B.A., Tunghai University; M.A., Oklahoma City University

Chair of Advisory Committee: Dr. Zohreh R. Eslami

This dissertation investigated Taiwanese English as Foreign Language (EFL) learners' incidental noticing and their subsequent language learning in relation to learner proficiency level and dyadic type in a text-based computer-mediated communication (CMC) environment. Sixty participants were included to form 30 dyads. At random, eight low-intermediate and eight advanced nonnative English speakers (NNESs) were paired with 16 native English speakers (NESs) to form 16 NES-NNES dyads; another 14 advanced NNESs and 14 low-intermediate NNESs were paired to form 14 mixed-proficiency NNES-NNES dyads.

The results revealed that the synchronous computer-mediated communication (SCMC) medium could, in general, enhance the occurrence of learners' incidental noticing and their subsequent second language (L2) learning regardless of learners' proficiency levels and dyadic types. No significant differences were found in the amount of the language-related episodes (LREs) produced by the NES-NNES dyads when

compared to the NNES-NNES dyads. With regard to the number of LREs generated by the learners of different proficiency levels, the results showed that: (1) in the NES-NNES dyads, no significant difference was found between the low-intermediate and advanced learners, and (2) in the NNES-NNES dyads, the low-intermediate learners produced a significantly greater number of LREs than their advanced interlocutors. In terms of the effect of interlocutors' proficiency levels on the number of LREs produced by the learners, the results revealed that: (1) the low-intermediate learners in the NES-NNES dyads produced a significantly greater number of LREs than the low-intermediate learners in the NNES-NNES dyads, and (2) the advanced learners in the NES-NNES dyads also produced a significantly greater number of LREs than the advanced learners in the NNES-NNES dyads.

With respect to the learners' performance on both posttests, the results of chi-square analyses showed that: (1) no significant differences were found both within and across the two dyadic types, and (2) no significant differences were found between learners of different proficiency levels within and across both NES-NNS and NNES-NNES dyads.

Logistic regression analyses revealed that five LRE characteristics (type, source, complexity, proficiency, and successful uptake) in the NES-NNES dyads and three LRE characteristics (proficiency, timing and successful uptake) in the NNES-NNES dyads were shown to be significant predictor variables of the learners' subsequent L2 learning. Successful uptake was the most prevalent predictor variable of the learners' subsequent L2 learning across the two dyadic types. Besides, proficiency appeared to be the second prevalent variable but played a different role in these two dyadic types. Considering the

language aspects focused in the LREs, negotiations on the linguistic features of grammar, vocabulary, and spelling were much more prevalent than the pragmatic aspects of language.

ACKNOWLEDGEMENTS

I gratefully acknowledge my committee chair, Dr. Zohreh Eslami, who has been extremely patient, kind, and supportive to the development of my doctoral academics. Without her inspiration, I would not have gone this far. In addition, I sincerely appreciate my committee members, Dr. Lynn Burlbaw, Dr. Shari Kendall, and Dr. Gwendolyn Webb-Johnson, for their guidance and support for my coursework and this dissertation.

Gratitude also goes to my department head, Dr. Dennie Smith, for his generous financial support since my first day in the Department of Teaching, Learning, and Culture at Texas A&M University. Dr. Pat Wiese is another respected professor who deserves my gratitude. She has been giving me extensive feedback on my academic writing. I also want to extend my appreciation to Dr. Shuchiao Tsai. He has been my mentor since I was a lecturer in Taiwan, and he also helped me to monitor the Taiwanese participants in this study.

Finally, thanks to my mother, father, and sister for their unconditional support, patience, and love. As a personal tribute for years of encouragement, completing my doctoral study would be the best reward for them.

TABLE OF CONTENTS

CHAPTER Page

LIST OF FIGURES

LIST OF TABLES

TABLE Page

CHAPTER I

INTRODUCTION

Form-focused instruction refers to any instructional treatment that is intended to address language learners' attention to linguistic or sociolinguistic form, and it consists of both conventional approaches (Focus-on-Form**s**) to teaching forms based on structured syllabi and more communicative approaches (Focus-on-Form) in which students' attention to form arises out of meaning-focused activities (Long, 1996). The term "Form" includes phonological, lexical, grammatical and pragmalinguistic aspects of language (Ellis, 2001).

In Focus-on-forms, preselected forms are the main focus of the intensive treatment. Focus-on-form would be either planned or incidental. Planned focus-on-form is also focused on preselected form, but attention to form is raised while learners are engaged in meaning rather than form-focused activities (Ellis, Basturkmen, & Loewen, 2002). However, as planned focus-on-form, incidental focus-on-form also involves primary attention to meaning but without focusing on any preselected form, so the focus could be on any form arising incidentally (Ellis, 2001).

Compared to planned focus on form, fewer studies have examined the effects of incidental focus on form[1] (Loewen, 2005; Shekary & Tahririan, 2006; Williams, 2001). As a result, the understanding of the acquisitional outcomes of incidental focus-on-form on Second Language Acquisition (SLA) is fairly limited. Therefore, the current study aims to add on to this sparse literature.

This dissertation follows the style of *The Modern Language Journal*.

[1] Since "noticing," proposed by Schmidt (1990), is one of the most important cognitive constructs underpinning incidental focus-on-form, in this study, incidental noticing and incidental focus-on-form are used interchangeably.

Previous literature has recognized the positive impact of incidental noticing during learners' interaction and negotiation of meaning on second language learning in face-to-face contexts (Ellis, Basturkmen, & Loewen, 2001a; 2001b; Loewen, 2002, 2003a, 2003b, 2004, 2005; Loewen & Philp, 2006; Murphy, 2002; Williams, 1999, 2001; Schmidt & Frota, 1986). Similar learning outcome is expected to occur when moved to an online text-based chat mode setting because online discussion is similar to written texts in its language complexity and similar to face-to-face discussion in the functions performed (Chun, 1994; Lai & Zhao, 2006). Besides, many studies have reported the advantages of computer-mediated communication (CMC) over face-to-face discussion for language learning because CMC can (a) amplify students' attention to form (Warschauer, 1997); (b) increase students' L2 written production (Kern, 1995); (c) create a less stressful environment for L2 practice (Chun, 1994); (d) constitute a more equitable and non-threatening medium for L2 discussion, especially for women, minorities, and shy students (Beauvois, 1992; Kern, 1995; Warschauer, 1996); (e) offer L2 learners an additional exposure to native speakers (Kung, 2002); (f) elicit better quality in discourse management and more lexically and syntactically complex utterance (Chun, 1994); (g) break both time and geographic constraints (Warschauer, 1997); (h) encourage a collaborative spirit among students (Beauvois, 1992); and (i) serve as a bridge to improve students' speaking through writing (Chun,1994; Kern, 1995; Smith, 2003a, 2003b).

With all these positive capacities of CMC, the scholarly literature has not yet provided a thorough investigation of the synchronous CMC (SCMC) medium itself, particularly the association between text-based online chat and L2 acquisition. This study aims to explore

the role of incidental noticing during text-based online chatting between (1) dyads of native English speakers (NES) and nonnative English speakers (NNES) and (2) dyads of NNES-NNES in order to better understand the potential of text-based online chat to facilitate second language learning.

STATEMENT OF THE PROBLEM

Even though noticing is an internal and private process and can not be observed directly (Schmidt, 1993), incidental learning is possible or even effective when learners' attention is focused on what is to be learned. With planned focus on form, both pretest and posttest can be used to assess learners' gains in the use of the targeted form. However, with incidental focus on form, conducting such a pretest is not possible because one can never predict what forms will arise incidentally during a meaning-focused activity (Swain, 2001). Hence, most of the incidental noticing studies have been conducted descriptively or explanatorily.

While theories on SLA are insightful, only empirical research can serve to validate them. Although previous studies have described the occurrence of incidental noticing and uptake, only a handful of empirical research has investigated the relationship between noticing and SLA in face-to-face contexts (Loewen, 2002, 2004, 2005; Williams, 2001). Furthermore, even fewer studies have explored the cognitive effects of text-based *online* discussion on noticing (Lai & Zhao, 2006; Shekary & Tahririan, 2006). These studies have suggested that SCMC could promote more noticing of problematic linguistic forms, which, in turn, has more possibility to assist SLA. The present study aims to add to the emerging literature on the contextual factors that could possibly affect noticing. Specifically, the study

intends to find out (1) whether text-based online discussion would help English as a foreign language (EFL) learners notice both their problematic linguistic output and the interactional feedback provided by their NES or NNES interlocutors, and (2) how the effect of noticing is associated with L2 learners' subsequent learning in the SCMC setting.

THE PURPOSE OF THE STUDY

CMC can give rise to real communication by temporally and geographically increasing the opportunities for interaction (Warschauer, 1997) because it allows students from different countries to interact cross-culturally regardless of the time differences. However, the only two studies (Lai & Zhao, 2006; Shekary & Tahririan, 2006), to the researcher's knowledge, investigating the relationship between synchronous text-based discussion and incidental noticing are conducted by NNES-NNES dyads in the same language institutes and, hence, do not make use of NESs which is easily afforded by CMC. Therefore, this study intends to fill the gap by having Taiwanese EFL learners chat online with NESs in the United States through the medium of CMC.

Recently, there is a trend in combining meaning-focused with form-focused instruction in order to promote learners' SLA. In incidental focus on form, linguistic or sociolinguistic items are focused on briefly within meaning-focused activities (Loewen, 2003a). The unit of analysis in studies of incidental focus on form has been termed as Focus on Form Episode (FFE) by Ellis et al. (2001a). Swain (2000, 2001) has also suggested that observation of learners' noticing can be accomplished through collaborative dialogue or the language-related episode (LRE). LREs are mini-dialogues, in which learners, either explicitly or implicitly, ask or talk about language or question their own or/and

interlocutors' language use (Swain & Lapkin, 1998). Based on this analysis unit, probably the best way to assess the effect of noticing is to retrieve the knowledge of the targeted linguistic or sociolinguistic items from a learner's memory through the use of individual tailor-made posttests derived from the items discussed during LREs (Ellis et al., 2001b; Williams, 2001). However, because the testing can be done only after the incidental focus on form has occurred, it is not possible to investigate the learner's prior knowledge of the targeted items. Nevertheless, if an error in production has occurred or a question about an item has been raised, it could be seen as a clear indication of the learner's difficulty with that item in his/her interlanguage (IL) system (Ellis et al., 2001b; Swian, 2001). Thus, learning can be operationalized as an increase in the accurate use of the targeted forms in subsequent contexts (Loewen, 2005; Williams, 2001).

In spite of the obscurity of designing tailor-made posttests, several recent studies have explored the relationship between noticing and L2 learning by individually testing the linguistic items that have arisen incidentally during interaction (Loewen, 2005; Shekary & Tahririan, 2006; Williams, 2001). Unlike Williams' study, which is fairly limited in scope, Loewen's and Shekary and Tahririan's studies went one step further and were much more sophisticated with regard to their evaluation scope and research design. Both studies investigated the effectiveness of incidental focus-on-form in subsequent learning, but one in a classroom setting (Loewen, 2005) and the other in an online setting (Shekary & Tahririan, 2006). Both studies found that successful uptake was the strongest predictor of correct test responses. Nevertheless, more studies are required to further validate the effect of noticing. The current study is an attempt to contribute to the growing body of empirical studies on

noticing by investigating both NNES-NNES and NES-NNES dyads' negotiation of meaning with respect to both linguistic and sociolinguistic issues.

Shekary and Tahririan (2006) have documented how learners notice the gaps in their IL during the negotiation of meaning as well as how this noticing is associated with their subsequent learning in an *online* setting. In their study, the dyads were formed between L2 learners, and three linguistic features, including grammar, vocabulary, and spelling, were investigated. As far as sociolinguistic aspects of language are concerned, the only study pertaining to incidental noticing of pragmatics in an online setting has been conducted by Tudini (2007), investigating whether native speaker (NS) chat rooms would provide opportunities for non-native speakers (NNS) of Italian to practice intercultural (content and pragmatic) negotiation strategies. Based on the researcher's knowledge, there is no other study so far that has investigated the relationship between online text-based incidental noticing and L2 learners' SLA of both linguistic and sociolinguistic aspects by including both NES-NNES and NNES-NNES dyads. The purpose of this study is to fill this gap.

In empirical studies of pragmatics, one important question to ask would be what should serve as baseline data in interlanguage (IL) pragmatics. To some extent, a "mechanical, yet theoretically correct answer" for the baseline data in assessing learners' IL pragmatics is the pragmatic-related input they have received (Kasper, 1992, p. 224). This answer could be problematic if L2 learners are receiving input for some specific pragmatic features from a variety of different input sources during the treatment period of a study. However, in the present study, since the pragmatic test items are constructed based on the input each student receives during the negotiation of meaning, the baseline data for

measuring each L2 learners' IL pragmatics can be assumed to be coming from only one source of input—each EFL learner's respective interlocutor.

Based on previous interventional studies, researchers have made some tentative conclusions: (a) pragmatic ability is teachable to learners with different language proficiency through either explicit or implicit instruction whereas explicit may lead to a greater extent of improvement over implicit instruction; (b) even though L2 learners can pick up some pragmatic norms without instruction, pedagogical intervention has its role in facilitating learners' ultimate attainment of ILP more effectively; and (c) students can best improve their pragmatic competence through various forms of metapragmatic instruction (House, 1996; Ross, 2005; Takahashi, 2001, 2005). According to Bardovi-Harlig and Dornyei (1998), the disparity between nonnative speakers' (NNSs') and native speakers' (NSs') pragmatic competence may be due to vital factors associated with input: "the availability of input" and "the salience of relevant linguistic features in the input from the point of view of the learner" (p. 234). In the process of second language learning, pragmatic failure is not addressed or pointed out by the teacher as often as those of grammatical mistakes, and it may make a learner be considered as rude or even uneducated (Z. Eslami-Rasekh., A. Eslami-Rasekh., & Fatahi, 2004). Similar result is evidenced in Bardovi-Harlig and Dornyei's (1998), in which EFL learners and teachers tended to rate grammatical errors as more serious than pragmatic errors. Simple exposure to the target language may be insufficient because pragmatic functions and relevant contextual factors are often not salient to learners (Bouton, 1994; Lyster, 1994), and it is very difficult for L2 learners to notice or even pick up the pragmatic norms by themselves without directing their attention to form. Since NSs have higher

pragmatic competence (Bardovi-Harlig & Dornyei, 1998) and higher procedure knowledge (Pasternak & Bailey, 2004) than the NNSs, they may be able to provide their NNSs peers with more pragmatic-related feedback than NNSs can do to each other . As a result, it is logical to speculate that that the occurrences of incidental focus-on-form in pragmatics would be more prevalent in the NES-NNES dyads than in the NNES-NNES dyads.

RESEARCH QUESTIONS FOR CHAPTER II

A number of studies have investigated the interactional effects between NS-NNS and NNS-NNS dyads on different aspects and under different contexts, including (1) input modifications (Long, 1981, 1983; Rulon & McCreary, 1986; Varonis & Gass, 1985) and output modifications (Adams, 2003; Gass & Varonis, 1994; Pica, Holliday, Lewis, & Morgenthaler, 1989; Oliver, 1995; Pica, 1988; Philp, 2003; Polio & Gass, 1998; Shehadeh, 1999; Yule & Powers, 1994) in face-to-face contexts, and (2) negotiation of meaning and output modifications (Iwasaki & Oliver, 2003; Keiko, 200; Morris, 2005; Schwienhorst, 2004; Smith, 2003a; Toyoda & Harrison, 2002; Tudini, 2003) in a CMC environment.

With respect to the studies on the NS-NNS interactions, these studies have particularly focused on how NSs or NNS teachers use *foreigner talk* to mediate and respond to the incomprehensible utterances produced by NNSs (Long, 1981). The results of these studies showed that (1) compared to NS-NS interactions, NSs' responses to NNSs' nontargetlike utterances usually involve more elaboration, more repetition, slower speech rate, more questions, more linguistic correction, more explicit and implicit feedback, simplified lexical items, less complex sentence structures, and more tolerance for abrupt topic shifts (Long, 1983, 1996, Long & Porter, 1985; McGroarty, 1990; Rulon & McCreary, 1986; Varonis &

Gass, 1985), and (2) NS-NNS interactions do assist NNSs to notice inconspicuous linguistic features (Toyoda & Harrison, 2002), to better understand their NS peers (Polio & Gass, 1998; Tudini, 2003) except for Gass and Varonis (1994), to produce modified output (Pica, Holliday, Lewis, & Morgenthaler, 1989), and to incorporate NSs' feedback into their L2 production (Oliver, 1995; Iwasaki & Oliver, 2003), and (3) NSs are considered as ideal language models and learners may get more motivated by interacting with them (Kitade, 2005; Kung, 2002; Pasternak & Bailey, 2004).

When comparing the interactional effects of NS-NNS and NNS-NNS dyads, mixed results were found. Some empirical studies showed that NS-NNS interactions produced more corrective feedback, negotiation of meaning, or modified output than NNS-NNS interactions (Mackey, Oliver, & Leeman, 2003; Porter, 1983), some showed the opposite results (Shehadeh, 1999; Varonis & Gass, 1985), and others showed no difference between them (Rulon & McCreary, 1986).

In sum, the findings of the aforementioned studies have demonstrated that NNSs in both NS-NNS and NNS-NNS interactions do provide comprehensible input for their interlocutors, negotiate for meaning with their peers, and modify their output when non-understanding occurs in both face-to-face and CMC contexts. Furthermore, as noted earlier, mixed results were found with regard to whether NS-NNS or NNS-NNS interactions would better promote negotiation of meaning. However, even though previous studies on CMC has showed that learners can benefit from interacting with their interlocutors to a certain extent, more research on the comparison of the interactional effects between NS-NNS and NNS-NNS dyads is needed. Therefore, the current research intended to fill this gap by including

both NS-NNS and NNS-NNS dyads in order to further examine and compare the interactional effects of these two dyadic types.

Investigating the potential of synchronous CMC to foster noticing and its effectiveness on L2 development entails the following research questions, which will be addressed in Chapter II:

1. Do learners in both NES-NNES and NNES-NNES dyads similarly notice the gap in their interlanguage during negotiation of meaning in the context of synchronous task-based negotiations?
2. Do learners in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations?
3. What effect, if any, does incidental noticing have on learners' subsequent language learning within and across the NES-NNES and NNES-NNES dyads respectively?
4. What characteristics of LREs best predict the learners' L2 learning in a text-based CMC setting in the NES-NNES and NNES-NNES dyads respectively?

RESEARCH QUESTIONS FOR CHAPTER III

With regard to L2 learners' proficiency levels, studies have showed that proficiency does play a role in SLA and noticing (Gass, Svetics, & Lemelin, 2003; Iwashita, 2001; Matsumura, 2003; Schmidt, 1990; Takahashi, 2005; Williams, 1999, 2001). In view of the relationship between SLA and incidental noticing, Gass, Svetics, and Lemelin's (2003) study explored the relationship between focused attention and proficiency in three linguistic

features (syntax, morphosyntax, and the lexicon) by having learners of three different proficiency levels receive treatment through a computer program. The results showed that the lowest proficient (first –year) learners improved significantly on all three linguistic foci, the more proficient (second-year) learners improved only on lexicon, and the advanced (third-year) learners improved on none of the three foci. They concluded that focused attention had more significant effects on the less-proficient students than on the most-proficient students in their study.

Iwashita (2001) examined the impact of different proficiency level groupings (low-low, high-high, and high-low groups) on opportunities for modified output in NNS-NNS communication. The results showed that although mixed-proficient dyads resulted in more amount of interaction than same-proficient ones, no significant differences were found between them. Also, lower-proficient learners in the high-low dyads modified their output more than lower-proficient learners in the low-low dyads whereas high proficiency learners modified their output more in the high-high dyads than in the high-low dyads. These findings implicate the effect of interlocutors' proficiency levels on noticing: lower-proficient learners profit more while interacting with higher-proficient learners than with low-proficient peers. In contrast, high-proficient learners may not benefit as much from interacting with lower-proficient learners than with learners of similar, or higher, proficiency level.

In addition, Williams' (1999) descriptive study examined eight NNES ESL learners (4 dyads) at four levels of proficiency to determine the extent to which learners can and do incidentally focus on form in their interactions with their peers. The results showed that

learners, at least at lower levels of proficiency, did not frequently focus on formal aspects of language. One reasonable explanation is that lower-level learners might have enough to do just to maintain communication and, therefore, are unable to focus on form as much as the more proficient learners. Besides, the results in Williams (2001) also showed that (1) more advanced learners generated more LREs and used this information more effectively; (2) what occurred during LREs seemed likely to get transferred to long-term memory for these more proficient learners; and (3) the lowest level learners appeared somewhat less ready or able to integrate the new input generated during the LREs. As evidenced in these studies, the effect of proficiency level on noticing is a factor worth investigating on negotiation of meaning.

Therefore, the present study will also include learners of two different proficiency levels (low-intermediate and advanced) in order to examine if proficiency has any significant impact on L2 learners' noticing and its subsequent learning. The following research questions will be addressed in Chapter III:

1. Do learners of different proficiency levels in both NES-NNES and NNES-NNES dyads *similarly* notice the gap in their IL during negotiation of meaning in the context of synchronous task-based negotiations?
2. Do learners of different proficiency levels in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations?
3. Does incidental noticing have *similar*, if any, effect on subsequent SLA of learners with different proficiency levels in both NES-NNES and NNES-NNES dyads?

4. Do learners' proficiency levels along with other characteristics of LREs *similarly* predict their L2 learning in a text-based CMC setting in the NES-NNES and NNES-NNES dyads?

DEFINITIONS OF TERMS

Synchronous computer-mediated communication (SCMC): Messages are typed and sent, and then received by the interlocutors instantaneously. This is contrasted against asynchronous computer-mediated communication (ACMC), such as email and bulletin boards (Smith, 2003a, 2003b). Even though both email (ACMC) and chat messages (SCMC) can be received instantly. It's the immediacy of interaction, which is simultaneous in SCMC and not in ACMC, which distinguishes one from the other. In this study, SCMC refers to instant Messenger software (i.e. MSN Instant Messenger).

Noticing: Schmidt (1990) identifies three aspects of consciousness involved in language learning: awareness, intention, and knowledge. The first sense, consciousness as awareness, embraces *noticing*. According to him, what learners notice in input is what becomes intake for learning, regardless of whether a learner deliberately attends to a linguistic form or not. Linguistic forms can serve as intake for language learning only if they are noticed by learners, and noticing is a necessary condition for L2 acquisition. The following two incidents could demonstrate L2 learners' noticing of the mismatch between their IL and the target language: (1) when they ask linguistic or sociolinguistic questions, or (2) when their interlocutors provide them with corrective feedback and then they respond to it.

Negotiation: Two types of negotiation have been identified: the negotiation of meaning and the negotiation of form. The negotiation of meaning is "entirely communicative in orientation, as it is directed at enabling the participants to achieve mutual understanding in order for communication to proceed." The negotiation of form is "didactic in orientation, as it is directed at improving accuracy and precision when no problem of understanding has arisen" (Ellis et al. 2001b, p. 414).

Pushed output: Swain (1995) states that the importance of output to learning could be that output pushes learners to process language more deeply than does input. With output, a learner is in control. In speaking or writing (output), learners can stretch their interlanguage to meet communicative goals. To produce, learners need to do something.

Pragmalinguistic vs. sociopragmatic: The term "pragmalinguistic" refers to "knowing that the linguistic form conveys the right pragmatic purpose." This term is usually complementary to sociopragmatic, which refers to "knowing that a linguistic form has specific social conditions for appropriate use" (Kasper & Rose, 1999, p. 98).

Interlanguage (IL): The type of language produced by nonnative speakers in second language learning.

Interlanguage Pragmatics: "The study of nonnative speakers' use and acquisition of L2 pragmatic knowledge" is referred to as interlanguage pragmatics (Kasper & Rose, 1999, p. 81).

Meaning-focused activities: Meaning-focused activity is defined as those with the primary goal of exchanging information, rather than learning about or practicing specific linguistic forms (Pica, Kanagy, & Falodun, 1993).

ORGANIZATION OF THE DISSERTATION

This dissertation includes four chapters: the Introduction (Chapter I); Incidental noticing and EFL students' subsequent second language learning in synchronous text-based discussion: An investigation of both NES-NNES and NNES-NNES dyads (Chapter II); Learners of different proficiency levels and incidental noticing in synchronous text-based discussion: An investigation of both NES-NNES and NNES-NNES dyads (Chapter III); and the Conclusion (Chapter IV).

CHAPTER II

INCIDENTAL NOTICING AND EFL STUDENTS' SUBSEQUENT SECOND LANGUAGE LEARNING IN SYNCHRONOUS TEXT-BASED DISCUSSION: AN INVESTIGATION OF BOTH NES-NNES AND NNES-NNES DYADS

OVERVIEW

This study investigated the relationship between online text-based incidental noticing and learners' second language acquisition of linguistic and sociolinguistic aspects by including 16 dyads of native English speaker (NES) vs. nonnative English speaker (NNES) and 14 dyads of NNES vs. NNES in a Computer-mediated Communication (CMC) environment. The results revealed that the synchronous SCMC (SCMC) medium can enhance the occurrence of learners' incidental noticing and their subsequent L2 learning in both NES-NNES and NNES-NNES dyads. In addition, no significant differences were found in the amount of the LREs produced between these two types of dyads. Although the NNES-NNES dyads performed slightly better than the NES-NNES dyads in both posttests, no significant differences were found both within and across dyads through chi-square analyses. Through logistic regression analyses, four characteristics (type, source, complexity, and successful uptake) related to LREs showed to be powerful predictor variables of the NES-NNES dyads, and two variables (timing and successful uptake) entered in the regression models of the NNES-NNES dyads. Successful uptake was shown to be the most prevalent predictor variable of the learners' subsequent L2 learning across the two dyadic types. Considering the linguistic aspects focused in the LREs, negotiations on the linguistic

features of grammar, vocabulary, and spelling are much more prevalent than the sociolinguistic aspects of pragmatics.

INTRODUCTION

In the field of Second Language Acquisition (SLA), there has been an immense debate on the role of consciousness in L2 development, especially related to the effectiveness of grammatical instruction. Some researchers argue that grammatical instruction has only minimal effect on L2 acquisition. For example, Krashen (1981) argues that L2 development is largely an unconscious process. Others argue that comprehensible input alone is not sufficient, and grammatical instruction is necessary; these researchers use terms such as Focus-on-Form (Long, 1991), consciousness-raising (Ellis, 1997), and input-enhancement (Sharwood-Smith, 1991). For example, studies of immersion education have shown that despite plentiful meaning-focused instruction, learners usually fail to develop high levels of grammatical or sociolinguistic competence, suggesting the need for some attention to form (Swain, 1985). Besides, Schmidt (1990) argues that noticing of input is a necessary condition for L2 development. The main idea is to direct learners' attention to language forms in order to help them internalize the targeted forms into the L2 system. More recently, Loewen (2003a) contends that focus on form allows learners to take time out from a focus on meaning to notice linguistic items in the input, and, therefore, linguistic forms may not go unnoticed. According to these researchers, teaching or instructional activities should include opportunities for learners to consciously notice and focus on the targeted linguistic and sociolinguistic forms.

Focus-on-form includes planned focus-on-form and incidental focus-on-form. Planned focus-on-form is effective because it exposes learners to the same form constantly while they are communicating. In contrast, incidental focus-on-form[2] enables learners to focus on a wide range of forms during negotiation of meaning, and it has the following five key features: incidental noticing "(1) occurs in discourse that is primarily meaning-centered; (2) is observable (i.e. occurs interactionally); (3) is incidental (i.e. it is not preplanned); (4) is transitory; and (5) is broadly focused (i.e. several different forms may be attended to in the context of a single lesson)" (Ellis et al., 2001a, p. 283-284).

Compared to planned focus on form, fewer studies have examined the effects of incidental focus on form, i.e. incidental noticing (Loewen, 2005; Shekary & Tahririan, 2006; Williams, 2001). As a result, the understanding of the acquisitional outcomes of incidental focus-on-form on SLA is fairly limited.

Previous literature has recognized the positive impacts of incidental noticing during learners' interaction and negotiation of meaning on second language learning in face-to-face contexts (Ellis et al., 2001a, 2001b, 2002; Ellis, Loewen, & Erlam, 2006; Loewen, 2002; 2003a, 2003b, 2004, 2005; Loewen & Philp, 2006; Murphy, 2002; Williams, 1999, 2001; Schmidt & Frota, 1986). Similar learning outcome is expected to occur when moved to an online text-based chat mode setting, i.e. synchronous computer-mediated communication (SCMC), because the hybrid nature of online text-based discussion is similar to written texts in its language complexity and similar to face-to-face discussion in the functions performed

[2] Since "noticing," proposed by Schmidt (1990), is one of the most important cognitive constructs underpinning incidental focus-on-form, in this study, incidental noticing and incidental focus-on-form are used interchangeably.

(Chun, 1994; Lai & Zhao, 2006). SCMC refers to real-time interaction between people over a network, and it has recently been used in the communicative language classrooms through web-based chat program, such as MSN Instant Messenger, AOL Instant Messenger, or Yahoo Messenger. In general, computer-mediated communication (CMC) appears to be an intellectual amplifier for language teaching, learning, and research (Smith, 2003a, 2003b; Warschauer, 1997).

However, few studies have explored the cognitive effects of text-based online chat, and even fewer have focused on noticing in SCMC setting. Pellettieri (2000) suggested that text-based online chat fosters negotiation of meaning and form-focused interaction. She stated that online chat promotes the noticing of problematic linguistic structures and thus is beneficial to the development of grammatical competence. Salaberry's (2000) findings revealed that his participants showed their first signs of understanding past-tense morphological markings in an online setting and that the particular uniqueness of the online CMC may enhance learners' ability to focus their attention on both function and form, which serves to facilitate their L2 morphological development.

Shekary and Tahririan (2006) have documented how learners would notice the gaps in their interlanguage (IL) during the negotiation of meaning as well as how this noticing is associated with their subsequent learning in an *online* setting. In their study, the dyads were formed between L2 learners, and three linguistic features, including grammar, vocabulary, and spelling, were investigated. As far as sociolinguistic aspects of language are concerned, the only study pertaining to incidental noticing of pragmatics in an online setting was conducted by Tudini (2007), investigating whether native speaker (NS) chat rooms would

provide opportunities for non-native speakers (NNS) of Italian to practice intercultural negotiation strategies.

Therefore, to the researcher's knowledge, there is no study so far that has investigated the relationship between online text-based incidental noticing and L2 learners' SLA of both linguistic and sociolinguistic aspects by including both native English speaker (NES) vs. non-native English speakers (NNES) *and* NNES vs. NNES dyads. The purpose of this study is to fill this gap.

THEORETICAL FRAMEWORK: INTERACTIONIST PERSPECTIVE OF SLA

It is widely accepted that communicative interaction is especially facilitative for learners' SLA (Long, 1983, 1996, Long & Porter, 1985; McGroarty, 1990; Rulon & McCreary, 1986; Varonis & Gass, 1985). Long and Robinson (1998) have subsumed this process of negotiation of meaning under the Interaction Hypothesis, which states that the conditions for SLA are crucially enhanced by having L2 learners negotiate meaning with NSs or NNSs. This type of negotiation is also described in the literature as Focus on Form, and is defined by Long (1991) as follows: "Focus on form….overly draws students' attention to linguistic elements as they arise *incidentally*〔italics added〕in lessons whose overriding focus in on meaning or communication" (p. 45-46).

Long (1996) further suggests that "negotiation for meaning, and especially negotiation work that triggers interactional adjustments by NSs or more competent interlocutors, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways" (p. 451-52). In other words, from this theoretical perspective, negotiated interaction is viewed as beneficial for SLA as learners

elicit modified input from their interlocutors, are pushed to modify their own linguistic output, and receive important feedback on their target langue use, thus potentially focusing their attention on problematic utterances. For example, Long (1983) studied input and interactions between 16 NS-NS and 16 NS-NNS dyads and found that in the course of the interaction, NSs modified both their input and interactional structure of their utterances to NNSs more than they did to NS peers. Investigating output modifications by learners, Pica, Holliday, Lewis, and Morgenthaler (1989) examined negotiated interactions between 10 NS-NNS dyads across three tasks (information-gap, jigsaw, and discussion) to find out how the NNSs responded to their NS peers when a miscommunication had occurred. The results showed that in all three tasks, NNSs modified their output more frequently when their NS peers requested for clarification than expressed a need for confirmation. Also, NNSs' comprehensible output mostly resulted from the linguistic demands that NSs imposed on NNSs during the negotiation of meaning.

If one desires to adopt the theoretical grounds based on face-to-face interaction to rationalize the use of negotiation and interaction-based activities in a CMC environment, determining if the characteristics of computer-mediated negotiated interaction are similar to that reported in traditional interactionist studies is crucial. Similar learning outcome is expected to occur when moved to an online text-based chat mode setting because online discussion is similar to written texts in its language complexity and similar to face-to-face discussion in the functions performed (Chun, 1994; Lai & Zhao, 2006). Several principles from the perspective of Interactionist underlie the significance of CMC, including learners need to (1) "notice the linguistic characteristics of the target language input that they

receive," (2) "have opportunities to produce target language output," (3) "notice errors in their output," (4) "correct their linguistic output," and (5) "engage in target language interaction whose structure can be modified as needed for comprehension" (Chapelle, 1999, p.109).

Studies on CMC have also endorsed the effects of negotiation for meaning on facilitating L2 learning (Iwasaki & Oliver, 2003; Morris, 2005; Schwienhorst, 2004; Smith, 2003a; Toyoda & Harrison, 2002; Tudini, 2003). For example, Kitade (2000) examined 24 discussion sessions between NNSs of Japanese in a text-based CMC setting and sought to evaluate the potential impact of CMC on L2 learning. She found that many instances of learner- and other-initiated repair and negotiation of meaning did occur in NNS-NNS chats. Toyoda and Harrison (2002) examined negotiation of meaning between NNSs and NSs of Japanese in chat conversations, and the results showed that miscommunications did indeed elicit negotiation of meaning at word, sentence, and discourse levels between participants even when no particular communicative task was given.

While there is an emerging body of research that specifically explores computer-mediated negotiation based on Interactionist Hypothesis, one area that remains under-explored, however, is the relationship between text-based CMC, incidental noticing, and communicative task type between both NS-NNS dyads and NNS-NNS dyads.

INTERACTIONAL EFFECTS OF NS-NNS AND NNS-NNS DYADS

A number of studies have investigated the interactional effects between NS-NNS and NNS-NNS dyads on different aspects and under different contexts, including (1) input modifications (Long, 1981, 1983; Rulon & McCreary, 1986; Varonis & Gass, 1985) and

output modifications (Adams, 2003; Gass & Varonis, 1994; Pica, Holliday, Lewis, & Morgenthaler, 1989; Oliver, 1995; Pica, 1988; Philp, 2003; Polio & Gass, 1998; Shehadeh, 1999; Yule & Powers, 1994) in face-to-face contexts, and (2) negotiation of meaning and output modifications (Iwasaki & Oliver, 2003; Morris, 2005; Schwienhorst, 2004; Smith, 2003a; Toyoda & Harrison, 2002; Tudini, 2003) in a CMC environment.

With respect to the studies on the NS-NNS interactions, these studies have particularly focused on how NSs or NNS teachers use *foreigner talk* to mediate and respond to the incomprehensible utterances produced by NNSs (Long, 1981). The results of these studies showed that (1) compared to NS-NS interactions, NSs' responses to NNSs' nontargetlike utterances usually involve more elaboration, more repetition, slower speech rate, more questions, more linguistic correction, more explicit and implicit feedback, simplified lexical items, less complex sentence structures, and more tolerance for abrupt topic shifts (Long, 1983, 1996, Long & Porter, 1985; McGroarty, 1990; Rulon & McCreary, 1986; Varonis & Gass, 1985); (2) NS-NNS interactions do assist NNSs to notice inconspicuous linguistic features (Toyoda & Harrison, 2002), to better understand their NS peers (Polio & Gass, 1998; Tudini, 2003) except for Gass and Varonis (1994), to produce modified output (Pica, Holliday, Lewis, & Morgenthaler, 1989), and to incorporate NSs' feedback into their L2 production (Oliver, 1995; Iwasaki & Oliver, 2003); and (3) NSs are considered as ideal language models and learners may get more motivated by interacting with them (Kitade, 2005; Kung, 2002; Pasternak & Bailey, 2004).

Long (1983), for example, found that in the course of interactions, NSs modified both their input and interactional structure of their utterances to NNSs more than they did to NS

peers. Also, NSs' proficiency in their first language may allow them to better control the conversation flow and offer more immediate feedback and comprehensible (modified) input to their NNS counterparts.

Gass and Varonis (1994) inspected the relationship among input (modified and unmodified groups), interaction (interactive and non-interactive groups), and L2 production by having 16 NS-NNS dyads perform an information gap task. The results showed that modified input significantly and positively assisted NNSs' comprehension; unexpectedly, the NNSs in the interactive group were not found to better comprehend their NSs' utterances than those in the non-interactive group. In view of this surprising finding, Polio and Gass (1998) replicated Gass and Varonis' study by enlarging their sample size to 30 dyads and having them perform two communicative tasks instead of one. The results demonstrated that interaction did facilitate NNSs to better understand their NS peers. They argued that when L2 learners have difficulties controlling their own language production, it would be more difficult for them to notice the gaps in their IL or to test their hypotheses, especially when their interlocutors, NSs, are leading most of the interaction.

Investigating output modifications by learners, Pica, Holliday, Lewis, and Morgenthaler (1989) examined negotiated interactions between 10 NS-NNS dyads across three tasks to find out how the NNSs responded to their NS peers when a miscommunication had occurred. The results showed that in all three tasks, NNSs modified their output more frequently when their NS peers requested for clarification than expressed a need for confirmation. Also, NNSs' comprehensible output mostly resulted from the linguistic demands that NSs imposed on NNSs during the negotiation of meaning.

Focusing only on one type of linguistic feedback, Oliver (1995) explored the occurrence and type of negative feedback between the interactions of eight child NS-NNS dyadic conversation. The results showed that NSs provided both reactive and implicit negative feedback to their NNS peers. Additionally, NNSs also incorporated the negative feedback, provided by their NS counterparts, into their L2 production.

In a CMC setting, Tudini (2003) examined the negotiation of meaning and modification of output raised from the interaction of a given topic between nine L2 learners and 49 NSs of Italian in a NS chat room. The results showed that negotiations occurred in the majority of the NS-NNS chat activities. Triggers for the negotiated interactions consisted of both grammatical and lexical features, and types of negotiations consisted of both NNS-and NS-initiated requests for clarification as well as implicit and explicit correct feedback. The author concluded that conversing with NSs in a chat room would provide NNSs "an authentic and purposeful cross-cultural experience" (p. 157).

Iwasaki and Oliver (2003) investigated the provision and use of negative feedback between 12 dyads of NNS-NS of Japanese in an online chat program. The results showed that even though the percentage of NSs' negative feedback to NNSs' incomprehensible forms was lower than that reported in some previous studies conducted in a face-to-face setting, NSs did provide negative feedback, and NNSs also incorporated those feedbacks into their modified output. However, whether or not online chats would generate enough amount of negative feedback to assist SLA remains unanswered.

Toyoda and Harrison (2002) examined negotiation of meaning between NNSs and NSs of Japanese in chat conversations that took place in an online virtual university campus. The

results showed that miscommunications did indeed elicit negotiation of meaning at word, sentence, and discourse levels between participants even when no particular communicative task was given. Additionally, the authors found that NNSs would not be made aware of some important language features for successful L2 development that had been ignored in language classrooms if they had not had the chance to make conversation with NSs of Japanese online.

When comparing the interactional effects of NS-NNS and NNS-NNS dyads, mixed results were found. Some empirical studies showed that NS-NNS interactions produced more corrective feedback, negotiation of meaning, or modified output than NNS-NNS interactions (Mackey, Oliver, & Leeman, 2003; Porter, 1983), some showed the opposite results (Shehadeh, 1999; Varonis & Gass, 1985), and others showed no difference between them (Rulon & McCreary, 1986).

Porter (1983) examined the frequency of interactions generated by NS-NNS and NNS-NNS dyads and found that the interactions between NS-NNS dyads quantitatively exceeded those between NNS-NNS dyads. She suggested that NSs' natural language advantage allowed them to direct NNSs' attention to nontargetlike utterances.

Along the same line, Varonis and Gass (1985) investigated conversational interactions between 4 NS-NS, 4 NS-NNS, and 14 NNS-NNS dyads. The results of their study showed that negotiation of meaning occurred more frequently in NNS-NNS dyads than in both NS-NNS and NS-NS dyads. They explained that this result might be caused by the lack of shared background (language and proficiency) between learners in NNS-NNS dyads. Besides, because NNSs were using a foreign language to communicate, any

miscommunication could potentially be attributed to either one or both of the interlocutors; therefore, they would be more willing to respond to their interlocutors' corrective feedback without feeling humiliated. They further suggested that even though the lack of shared background in NS-NNS dyads that would possibly lead to a comparable frequency of negotiation of meaning to NNS-NNS dyads, the unequal linguistic status between NSs and NNSs actually would discourage negotiation between them. They concluded the negotiated interaction between learners in NNS-NNS dyads is important for them because it provides them a "non-threatening forum" to build up their language competence and an opportunity to receive comprehensible input via negotiation (p. 87).

Shehadeh (1999) investigated the NNSs' ability to produce modified output based on comprehensible input of two communicative tasks between eight NS-NNS and eight NNS-NNS dyads. The results showed that NNSs provided a higher percentage of other-initiated clarification requests to their NNS peers than NSs did to their NNS interlocutors even though no significant differences were found between them. In addition, the NNS-NNS dyads produced significantly more amount of modified comprehensible output than the NS-NNS dyads. Shehadeh further contended that when NNSs in the NNS-NNS dyads has to cope with the pressure of producing comprehensible output for their peers, this interactional effect "stretches and exploits their IL capacity to the limit" (p. 658).

Mackey, Oliver, and Leeman (2003) investigated the occurrence and incorporation of feedback in task-based interaction between 24 NS-NNS and 24 NNS-NNS dyads, in which half of them are adult dyads and the other half are child dyads. The results showed that in all dyads, negative feedback were provided by either NSs or NNSs to many of the problematic

utterances produced by their NNS peers. However, in adult dyads, NSs in NS-NNS dyads supplied significantly more negative feedback than NNSs did in NNS-NNS dyads. This finding is not consistent with that of some earlier studies, in which NNS-NNS interactions would generate more negotiated meaning than NS-NNS interactions (Gass & Varonis, 1994; Long & Porter, 1985; Polio & Gass, 1998; Varonis & Gasss, 1985). The authors argued that it was because the definition of negotiation of meaning was broader than just the provision of negative feedback in previous studies. They also argued that this finding seems to echo educators' and students' intuitions on dyadic interaction: Adult NSs would provide significantly more negative feedback than NNSs do to their interlocutors. Interestingly, although NSs in adult NS-NNS dyads supplied significantly more negative feedback than NNSs did in adult NNS-NNS dyads, NNSs had more opportunities to modify their output in response to the feedback of NNSs' than NSs'. The authors explained that this might be due to (1) when NNSs did not possess access to the target forms, they had to count on their NNS peers to make their utterances comprehensible; (2) when NNSs did not have enough linguistic competence to decode or reformulate their NNS peers' nontargetlike utterances, they would have to request for clarification more often; and (3) when NNSs' were not confident enough to correct their NNS peers' incomprehensible utterances, they would tend to draw out output modifications from their NNS interlocutors.

Rulon and McCreary (1986) examined and compared free conversations between teacher-fronted (NS-NNS) and small-group (NNS-NNS) in an ESL classroom and found that there was only little difference between the two different settings in terms of the length and the degree of syntactic complexity of the learners' talk. Besides, no differences were

found in the amount of informational content covered between these two settings, implicating that NNSs could benefit from interacting with each other as much as interacting with their NS teachers. Given that the NSs in the current study are pre-service teachers taking an ESL course, to some extent, they may play the role of language teachers since they may have a better command of language teaching and a higher level of pedagogical mindset than other NSs who have limited experience interacting with NNSs.

William's (2001) descriptive study explored language-related episodes (LREs) of classroom interaction in which there was incidental focus on form. The study also examined whether the item that was the focus in the LRE was used in subsequent production. The results indicated that in most cases, attention to form in the LRE was related to accurate performance on the test. Besides, even though some advanced NNSs may have native-like language proficiency, they still may lack the confidence and the ability to provide their NNS counterparts with comprehensive feedback in L2 all the time.

In sum, the findings of the aforementioned studies have demonstrated that NNSs in both NS-NNS and NNS-NNS interactions do provide comprehensible input for their interlocutors, negotiate for meaning with their peers, and modify their output when non-understanding occurs in both face-to-face and CMC contexts. Furthermore, as noted earlier, mixed results were found with regard to whether NS-NNS or NNS-NNS interactions would better promote negotiation of meaning. However, even though previous studies on CMC have shown that learners can benefit from interacting with their interlocutors to a certain extent, more research on the comparison of the interactional effects between NS-NNS and NNS-NNS dyads is needed. Therefore, the current research intended to fill this gap by

including both NS-NNS and NNS-NNS dyads in order to further examine and compare the interactional effects of these two dyadic types.

NOTICING AND LANGUAGE ACQUISITION

One of the most controversial issues in applied linguistics is the role of consciousness in SLA. Many believe that conscious learning of the target language is necessary if learners are to produce correct forms and use them appropriately (Schmidt, 1990). Others firmly believe that language learning is essentially unconscious (Krashen, 1981).

Viewing learning as a conscious process, Schmidt (1990) identifies three aspects of consciousness involved in language learning: awareness, intention, and knowledge. The first aspect, consciousness as awareness, covers noticing. According to him, what learners notice in input is what becomes intake for learning, regardless of whether a learner deliberately attends to a linguistic form or not. Linguistic forms can serve as intake for language learning only if they are noticed by learners, and noticing is a necessary precondition for L2 acquisition. This requirement of noticing is meant to apply equally to all aspects of language (lexicon, phonology, grammatical form, and pragmatics). Even though noticing is an internal and private process that can't be observed directly (Schmidt, 1993), incidental learning is both possible and effective when a task requires learners to focus on what is to be learned.

In an attempt to direct learners' attention to form, Swain (1985) proposes the *output hypothesis*, in which output pushes learners to process language more deeply than does input. With output, a learner is in control. Students' output would thus seem to contribute to their interlanguage development. The characteristics of output provide us with insights of the role of interaction for SLA (Swain, 1995). Output may promote noticing, which is important if

one believes in the noticing hypothesis. Output also promotes hypothesis testing because it has been argued that some errors which appear in learners' written and spoken language demonstrate their hypotheses on how the target language is used and learners need to test those hypotheses by producing L2 virtually (Swain, 2000). Drawing on Swain's (1995, 200) output hypothesis, Izumi's (2002) experimental study explored the effects of output and visual input enhancement on 47 ESL learners' acquisition of English relative clause and found that output facilitated learners to notice the formal elements in the input, to notice the gaps in their IL, and to integrate the target structure in their output.

In sum, in order to move toward the target language, SLA research suggests that students must first focus on their own errors – what some researchers have described as *noticing the gap* (Schmidt, 1993; Swain, 1995, 2000). In other words, L2 learners must develop their own metalinguistic awareness in order to make a modification in their interlanguage (Blake, 2000).

INCIDENTAL NOTICING IN A CLASSROOM SETTING

The majority of the studies on incidental noticing in face-to-face setting are descriptive in nature (Ellis et al., 2001a, 2001b; Loewen, 2003a, 2004; Schmidt & Frota, 1986; William, 1999, 2001). The earliest descriptive data appears to be that of Schmidt and Frota (1986), in which Schmidt analyzed his own acquisition of Portuguese by keeping a diary of what he had noticed through instruction and also recording his interactions with NSs. By comparing the two sources of data, they found a significant association between recorded instances of noticing in the form of diary entries and Schmidt's use of linguistic forms. Williams' (1999) study examined eight ESL learners (four dyads) at four levels of proficiency to determine

the extent to which learners could attend to form while interacting with each other. The results suggested that the degree and type of learner-generated attention to form was related to proficiency level and the nature of the activity in which the learners were engaged and that learners overwhelmingly chose to focus on lexical rather than grammatical issues. However, the study did not shed any light on learning outcomes of the forms that come into focus.

Ellis et al.'s (2001a) study on incidental focus on form in a face-to-face classroom showed the following: there were 448 focus-on-form episodes (FFEs) with one FFE every 1.6 minute, the great majority of the FFEs involved the negotiation of form as opposed to the negotiation of meaning, and the great majority of FFEs addressed lexical or grammatical problems. The authors further contended that such a high incidence of focus on form would not interfere with the communicative flow of the lessons because teachers and students appeared to be able to navigate in and out of focusing on aspects of the code while keeping the overall orientation to message intact. Along the same line, Loewen's (2003a) study investigated 32 hours of meaning-focused lessons in 12 ESL classes with 118 students in order to compare the frequency and characteristics of incidental FFEs occurring in these classes. The results showed incidental focus on form occurred in all 12 classes, but it did not occur uniformly, ranging form 0 to 61 FFEs per student. After that, Loewen (2004) also investigated which characteristics of incidental focus on form predicted uptake and successful uptake by using the same data set. The results indicated that the characteristics, such as complexity, timing, and type of feedback, influenced both the production of uptake and its success. In addition, the regression results for uptake showed that complexity, timing,

and response constituted the best predictive model for both uptake and successful uptake. In addition, source, type, and emphasis appeared to be also the best predictive model for successful uptake.

A few experimental studies have examined the effect of incidental focus-on-form on L2 learners' subsequent language learning in a face-to-face setting (Loewen, 2002, 2004, 2005). Among these studies, Loewen's (2005) quasi-experimental study examined the effectiveness of incidental focus on form in promoting SLA by creating two tailor-made posttests. The results revealed that learners were able to recall the targeted linguistic information correctly or partially correctly nearly 60% of the time one day after the FFE, and 50% of the time two weeks later. Furthermore, uptake, successful uptake, complexity, and source were found to be significant predictors of correct test scores through logistic analyses. This study has brought incidental focus-on-form study to another level because the effects of incidental noticing on learners' SLA were empirically examined through statistical analyses. In sum, the abovementioned studies suggest that incidental focus on form could be beneficial to learners, particularly if they incorporate the targeted linguistic items into their own production. As a result, the current study partially replicated Loewen's (2005) research design, but moving the delivery medium from traditional classroom to a SCMC environment.

INCIDENTAL NOTICING AND TEXT-BASED SYNCHORONOUS CMC

Several studies have reported the advantages of CMC over face-to-face discussion for language learning because CMC can (a) amplify students' attention to form (Warschauer, 1997); (b) increase students' L2 written production (Kern, 1995); (c) create a less stressful environment for L2 practice (Chun, 1994); (d) constitute a more equitable and non-

threatening medium for L2 discussion, especially for women, minorities, and shy students (Beauvois, 1992; Kern, 1995; Warschauer, 1996); (e) offer L2 learners an additional exposure to native speakers (Kung, 2002); (f) elicit more lexically and syntactically complex utterance (Chun, 1994); (g) break both time and geographic constraints (Warschauer, 1997); (h) encourage a collaborative spirit among students (Beauvois, 1992); (i) balance the amount of topic initiation and total utterances between native and no-native speakers (Schwienhorst, 2004); (j) serve as a bridge to improve students' speaking through writing (Chun, 1994; Kern, 1995; Smith, 2003a, 2003b); (k) enable learners to revisit their L2 production in print at a later time for different purposes (Beauvois, 1992; Chapelle, 1998); and (l) allow learners more processing time while reading and typing messages (Smith, 2003a).

However, only a few studies have investigated online incidental noticing in CMC (Lai & Zhao, 2006; Shekary & Tahririan, 2006; Tudini, 2007). Lai and Zhao's (2006) study examined the effects of text-based discussion on noticing and learners' interactional feedback among six mixed-proficiency dyads; each dyad worked on the same tasks, one via online chat and the other through face-to-face conversation. The results demonstrated that text-based online chat promoted noticing more than face-to-face conversations, especially in terms of learners' noticing of their own linguistic mistakes. Furthermore, Shekary and Tahririan's (2006) quasi-experimental study examined sixteen EFL learners' online chats to determine the effects of noticing and its subsequent L2 learning through two tailor-made posttests on three test types: correction, suppliance, and spelling. The study revealed that the learners did focus on form and that the ratio of LREs far exceeded those reported in previous offline settings. The results of the posttests suggested the learners were able to correctly

recall the targeted forms 70% in the immediate posttest and 56.7% in the delayed posttest. Considering the distribution of the characteristics of the LREs, logistic regression analyses revealed that successful uptake was the most powerful predictor for all three test types, and timing was the second strongest predictor in the correction model.

Studies on incidental noticing have investigated how negotiated interactions can facilitate L2 learners' language acquisition on linguistic aspects. Few studies have investigated the effects of noticing on learners' SLA with respect to pragmatic aspects of language.

INTERLANGUAGE PRAGMATICS AND NOTICING

The study of nonnative speakers' use and acquisition of L2 pragmatic knowledge is referred to as interlanguage pragmatics (Kasper & Rose, 1999, p. 81). In order to understand the cognitive and interactional processes in pragmatic development, research has to examine how principles of second language learning and instruction can be adopted by interlanguage pragmatics. In answering this question, Kasper and Rose state that "while the general requirement of noticing is directly applicable, and a focus on form can be extended to conventions of means and form (the pragmalinguistic end of pragmatics), it is not clear how a focus on form and such instructional techniques as recasting might be translated to sociopragmatic information" (p. 97).

Schmidt (1995) offers an example of noticing in pragmatics:

> In pragmatics, awareness that on a particular occasion someone says to their interlocutor something like, I'm terribly sorry to bother you, but if you have time could you look at this problem?" is a matter of noticing. Relating the various

> forms used to their strategic deployment in the service of politeness and recognizing their co-occurrence with elements of context such as social distance, power, level of imposition and so on, are all matters of understanding (p. 30).

Simple exposure to sociolinguistically appropriate input is unlikely to be sufficient for second language acquisition of pragmatic competence because the pragmatic features are sometimes opaque or are defined differently by L2 learners (Bouton, 1994; Lyster, 1994). Thus, L2 learners may fail to experience noticing of crucial pragmatic issues for years. The fact that this does not seem to apply to the L1 acquisition can be attributed to the efforts that parents and other caregivers make in order to teach communicative competence to children (Schmidt, 1993). However, higher pragmatic awareness does not necessarily translate into appropriate pragmatic production, which implies that awareness alone is insufficient for the development of interlanguage pragmatics (Bardovi-Harlig & Dornyei, 1998).

The study of interlanguage pragmatics has produced important empirical findings, primarily through the identification and comparison of speech act realization patterns in various languages based on data from both NSs and NNSs; in contrast, there has been little discussion of how pragmatic abilities are acquired in a second language (Fukuya & Zhang, 2002; Schmidt, 1993; Rose, 2005). Takahashi's (2005) qualitative study, for instance, examined the instructional effects in L2 pragmatics of 49 Japanese EFL learners' noticing of target English request forms. Two groups, a form-comparison and a form-search, received different treatments with regard to the degree of awareness. The results indicated that during the treatment, the learners in the form-comparison group noticed the target request forms to a greater extent than those in the form-search group. Further, the learners' higher awareness

of the target forms tended to ensure the emergence of these forms during their post-test performance.

Fukuya and Zhang (2002) focused on the effects of *recasting* (i.e. implicit corrective feedback) on learning the speech act of request. The results showed that: (a) the experimental group used the target language forms significantly more often than the control group did; and (b) the experimental group used the grammatically correct target forms significantly more often than the control group. In the same vein, Martinez-Flor and Fukuya (2005) included *recasts* as a feature in the implicit group. The results showed that both the explicit and implicit group improved significantly in the post-test over the pre-test and significantly outperformed the control group in the post-test.

All these findings support Schmidt's (1990, 1993, 2001) noticing hypothesis. However, the majority of the studies on interlanguage pragmatics focuses on either Focus-on-forms or planned focus-on-form, and they have shown that L2 learners can benefit from both explicit and implicit instructions (Fukuya & Zhang, 2002; Martinez-Flor & Fukuya, 2005; Takahash, 2005). The only study, to the researcher's knowledge, on incidental noticing of pragmatics in an online setting was conducted by Tudini (2007). She investigated whether L2 learners put into practice intercultural negotiation strategies in NS chat rooms. The results showed that NS chat rooms offered L2 learners opportunities to build up their intercultural communicative skills through negotiation of meaning. There were 37 (15.9%) intercultural negotiations out of 232 instances of negotiations. Tudini's study evidences that under minimal methodological interventions, learners do notice limited pragmatic features incidentally while engaging in online meaning negotiation.

With respect to the dyadic types, the abovementioned studies on incidental noticing (Lai & Zhao, 2006; Shekary & Tahririan, 2006; Tudini, 2007) have used either NS-NNS dyads or NS-NNS dyads; none of them have included both dyadic groups. Also, no other studies have considered noticing of pragmatic aspects of language in online or face-to-face contexts, except for Tudini's (2007) study. To address this gap in the literature, the current study aimed to investigate whether text-based online chat might lead to different levels of noticing and enhance Taiwanese English foreign language (EFL) learners' acquisition of both linguistic and sociolinguistic layers in both NES-NNES and NNES-NNES dyads.

RESEARCH QUESTIONS

Investigating the potential of synchronous CMC to foster noticing and its effectiveness on L2 development entails the following research questions:

1. Do learners in both NES-NNES and NNES-NNES dyads similarly notice the gap in their interlanguage during negotiation of meaning in the context of synchronous task-based negotiations?
2. Do learners in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations?
3. What effect, if any, does incidental noticing have on learners' subsequent language learning within and across the NES-NNES and NNES-NNES dyads respectively?
4. What characteristics of LREs best predict the learners' L2 learning in a text-based CMC setting in the NES-NNES and NNES-NNES dyads respectively?

METHODOLOGY

This quasi-experimental study focused on the naturally-occurring negotiation of meaning and the incidents of incidental noticing as well as its effect on SLA between two different types of dyads: NES-NNES and NNES-NNES dyads.

Participants

The study involved 60 participants (16 NES-NNES dyads and 14 NNES-NNES dyads) who were all students in their sophomore to senior year of college and were aged from 19 to 23. All participants volunteered to participate in this study in order to partially fulfill course requirements. Sixteen NESs (one male and fifteen females) were all undergraduate pre-service teachers and were taking an ESL methods course from a university in Texas. Out of 156 students majoring in Applied Foreign Language who were all enrolled in three writing courses in a national university in Taiwan, forty-four NNESs (nine males and thirty-five females) were selected based on their proficiency test scores. Learners' English proficiency was measured by the intermediate level Reading and Writing portions of General English Proficiency Test (GEPT),[3] with a mean of 48/100 and a SD of 13.2. Given that prior research has shown that learners engage in more negotiation of meaning in mixed-proficient dyads than in same-proficient dyads (Iwashita, 2001; Porter, 1986; Varonis & Gass, 1985), learners of two different proficiency levels were selected, in which the 22 lowest scoring students were defined as being at the low-intermediate level whereas the 22 highest scoring

[3] GEPT is the most widely accepted English language testing measurement in Taiwan, and most of the universities in Taiwan have been using students' GEPT scores as an indication of students' English proficiency or even a criterion for graduation. There are three levels of the GEPT available, including beginning, intermediate, and advanced levels. The reasons that the current study decided to employ the intermediate level of the GEPT were based on the researcher's observations of the EFL participants' English proficiency, the EFL instructor's recommendation, and level of difficulty of the test.

students were considered as advanced.[4] Eight low-intermediate NNESs and eight advanced NNESs were randomly selected from the entire participant pool to be paired with the 16 NESs to form the 16 NES-NNES dyads; the remaining 14 low-intermediate and 14 advanced NNESs were then randomly paired with each other to form the 14 NNES-NNES dyads.

Treatment

All of the dyads were asked to engage in online text-based chats through MSN Instant Messenger, free software available on the Microsoft webpage, for around 60 minutes per week in an eight-week span (see Table 1).

TABLE 1
Timeline and Stages of the Treatment

Timeline	Stages
Week 1	Orientation
Week 2-3	Ice-breaking activity
Week 4-6	Jigsaw task
Week 7-9	Decision-making task
Week 10	Immediate posttest
Week 13	Delayed posttest

To ensure that all participants were comfortable using computers, the first week was the orientation, in which the participants received detailed information and requirements for participating in this study. Following the orientation, the next two weeks were used for ice-breaking and rapport-building. Rapport-building between peers is important because it has the potential effect to "enhance learning, motivate learners, and reduce learner anxiety" (Jiang & Ramasy, 2005, p. 47). After knowing each other to a certain degree, each dyad

[4] It should be noted that the low-intermediate and the advanced levels were categorized by the learners' scores of the intermediate level of the GEPT rather than the results of administering different levels of the GEPT on the learners.

started two communicative tasks that required information exchange and negotiation of meaning. One way of provoking students to realize the gaps in their interlanguage is asking them to negotiate meaning through communicative task-based activities because during this process, students usually notice their linguistic deficiencies, including lexical, grammatical, phonological, semantic, or pragmatic in nature (Blake, 2000). In the present study, the two tasks, including jigsaw and decision-making, were drawn and modified from Chen (2008).[5] With the jigsaw task, the participants possess different pieces of a puzzle needed for a solution and therefore must work collaboratively to converge on a single outcome; with the decision-making task, the participants have equal access to all relevant facts but are not necessarily forced to converge on any common solution (Pica, Kanagy, & Falodun, 1993). The first treatment lasted from weeks 4 to 6 (jigsaw task), and the second from weeks 7 to 9 (decision-making task) (see Appendix A & B).

Coding Procedures

The coding procedures included, first of all, the identification of LREs in the learners' chat logs and then the identification of the characteristics of the LREs. Each step is illustrated in detail as follows:

1. *Identifying Linguistic-related Episodes* (LREs): LREs are mini-dialogues, in which learners, either explicitly or implicitly, ask or talk about language or question their own or/and interlocutors' language use (Swain, 2000; Swain & Lapkin, 1998).

[5] The only modification to Chen's (2008) study was the inclusion of more pictures in the jigsaw task. Since Chen's study only included NES-NNES dyads, a set of Chinese pictures was for the NNESs and another set of western pictures for NESs. However, since the current study included both NES-NNES and NNES-NNES dyads, some pictures of the well-known western figures, such as Martin Luther King and Michael Jackson, were added to the set of western pictures.

TABLE 2
Characteristics of LREs

Characteristics	Definition	Categories
Type	When an LRE is instigated	Reactive: Error correction Preemptive: Learner-initiated query
Linguistic focus	Linguistic target	Grammar/Vocabulary /Spelling/Pragmatics[a]
Source	The reason to instigate an LRE	Code: Inaccurate use of linguistic item with no apparent miscommunication Message: Problem understanding meaning
Complexity	Length	Simple: Only one response move Complex: More than one response move
Directness	Explicitness of the feedback	Indirect: Implicit (e.g., recast, clarification request, or repetition) Direct: Explicit (e.g., metalingual explanation)
Emphasis	Combination of complexity and directness	Light: Indirect and simple Heavy: Direct, complex, or both
Response	Type of feedback provided by the peer	Provision: A participant gives information about a language form by using a recast or an inform (e.g., a definition, an example, an explanation, or signaling the problem). Elicitation: A participant attempts to draw out from NNES a language form or information about a language form (e.g., clarification request, repetition, or prompt).
Timing	When the response occurs	Immediate: The feedback occurs in the turn following the trigger. Deferred: The feedback occurs more than one turn after the trigger occurred
Uptake	NNS response to feedback	Uptake: NNES acknowledges or produces the linguistic information provided in the response. No uptake: NNES produces no response
Successful uptake	Quality of student response	Successful uptake: NNES incorporates linguistic information into production. Unsuccessful uptake: NNES does not incorporate linguistic information into production.

Modified from Loewen (2005, p. 376).

[a] The only difference between the current study and Loewen (2005) in the characteristics of LREs is in the "linguistic focus." In the current study, pragmatics-related LREs were also investigated in the coding process since this study involved participants from different cultures and no study to date has investigated the relationship between incidental noticing of pragmatics and L2 learners' subsequent learning in a SCMC setting.

The LREs have been used for assessing noticing and its effect on learners' subsequent SLA (Loewen, 2005; Shekary & Tahririan, 2006; Swain; Williams, 2001). Each LRE consists of three discourse moves: trigger, response, and uptake (optional), and it starts when

the conversation is temporarily switched from focus-on-meaning to focus-on-form and ends when either the topic changes back to focus on meaning or a different linguistic form (Loewen, 2005). The following incidents were *not* coded as the occurrences of LREs, including: (1) when a problem was raised during discussion, but the problem was not related to linguistic or sociolinguistic form (i.e. grammar, vocabulary, spelling, or pragmatics); (2) when a linguistic error occurred, but the participants failed to or did not address it for whatever reason; and (3) when learners corrected their errors by themselves.

2. *Identify the Characteristics of the LREs*: All of the LREs identified were then coded into ten potentially influential characteristics for L2 learning, suggested by Loewen (2002, 2004, 2005) (see Table 2).

An example of the coding scheme is illustrated in Table 3. The NNES didn't understand the word *devastating* produced by the NES and asked for further explanation. Because the NNES raised a question, the type of the LRE was coded as *preemptive*. Meanwhile, because the LRE focused on the word *devastating*, the linguistic focus is *vocabulary*. In message-related LREs, the NNES used language as a tool in the sense that the linguistic item *devastating* being negotiated was needed in order to keep the conversation going. Therefore, it is a *message*-related LRE. Also, the LRE contains both multiple responses and uptake moves, so it is classified as *complex*. The NES' responses involved explicit explanation, which makes it a *direct* LRE. Complex, direct responses might make LREs much more salient than simple, indirect responses. Since this LRE is both complex and direct, a *heavy* emphasis is assumed. In addition, the NES' responses involved the *provision* of explicit information, and the feedback provided by the NES occurred in the

turn following the trigger, so the timing of the LRE is *immediate*. Finally, the NNES acknowledged and incorporated linguistic information provided in the response into production. So, it is considered an instance of both *uptake* and *successful uptake*.

TABLE 3
Example of Coding Scheme

	Characteristics	Episode A23
NES: *I know natural disasters can be **devastating**.* I can not imagine losing my house or my possessions to a disaster. **NNES**: *Can you explain "**devastating**" to me? I don't understand..* **NES**: Devastating means that you are really sad about something. For example, if something bad happened, like you lost your home to a natural disaster or if somebody really close to you passed away, you would be devastated. **NNES**: *I see. Thank you.* **NNS**: *You feel extreme grief and sadness when you are devastated.* **NNS**: Great! I am glad you are asking questions about vocabulary! **NNES**: *There was flooding in September in some of my classmates' hometown. I think it is very **devastating.***		Category
	Type	Preemptive
	Linguistic focus	Vocabulary
	Source	Message
	Complexity	Complex
	Directness	Direct
	Emphasis	Heavy
	Response	Provision
	Timing	Immediate
	Uptake	Uptake
	Successful uptake	Successful

Posttests and Test Items

After the LREs were identified, two individualized tailor-made posttests (immediate and delayed) relating to the linguistic and sociolinguistic items targeted in each LRE were created, and the NNSs who were responsible for triggering the specific LREs were tested for those items. Thus, the number of the test questions for each dyad in each posttest varied from one another. These posttests were used as an index of subsequent learning during negotiation of meaning. In order to ensure that the test items of the immediate posttest would not affect the learners' responses to the delayed posttest, it was not appropriate to use the same items triggered in the LREs for both posttests. As a result, for each learner, a half of the total test items were randomly assigned to the immediate posttest items, and another

half to the delayed posttest items. With regard to the timing of administering delayed posttests, previous experimental studies on incidental noticing vary greatly; some have no delayed posttests at all (Branden, 1997; Ellis et al., 2001a, 2001b; Lai & Zhao, 2006; Loewen, 2003a,2004; Murphy, 2002; Williams, 1999;), and most of them administer their delayed posttests in a certain number of days after the treatment, ranging from one to 14 days (Loewen, 2002, 2003b, 2005; Loewen & Philp, 2006; Williams, 2001). In order to increase the reliability of the claims made on the long-term effect of incidental noticing on L2 learning, the current study administered the immediate posttest *one* week after the treatment and the delayed posttest *three* weeks after the immediate posttest.

Both posttests were administered in the learners' regular classroom in written forms. The test items were constructed as closely as possible based on the LREs. In addition, four templates, *Suppliance, Correction, Spelling,* and *Pragmatics*, were developed (see Table 4).

Suppliance. Suppliance (vocabulary) tests were used primarily for LREs related to vocabulary and required learners to provide linguistic information about a word or phrase based on the original contexts in the corresponding LREs.

Correction. In correction (grammar) tests, learners were asked to rewrite or correct the ungrammatical sentences that they had produced in the LREs.

Spelling. In spelling tests, learners were asked to choose the correct spelling of the words that they failed to spell correctly in the LREs.

Pragmatics. In this test, learners were asked to provide the appropriate pragmalingusitc word, phrase, or discourse related to sociolinguistic concepts that they had produced inappropriately or encountered difficulties with during the LREs. The NESs'

responses/answers for those corresponding pragmatics-related LREs were used as the baseline data.[6]

TABLE 4
Sample of Test Types and the Corresponding LREs

Test Type	Test Item	Corresponding LRE
Suppliance	What does the word "devastating" mean in the following sentence? "Natural disasters can be *devastating*."	See the example in Table 3.
Correction	The following sentence is incorrect or inappropriate. Rewrite/correct it: "I am sorry for let you wait."	NNES: I am sorry for *let* you wait. NES: It's not a problem. I thought maybe we had lost our connection or something. NES: *letting*, not *let*
Spelling	Please choose the correct spelling for the following blank: I think we already finished our topic. I'm___ to chat with you. (A) greatful (B) grateful (C) gretful (D) gretiful	NNES: I think we already finished our topic. I'm *greatful* to chat with you. NES: should be *grateful* NNES: Oh, thank you. I am *grateful* to talk with you. NNS: me too
Pragmatics	Please rewrite the following inappropriate sentence: "A student says to his professor: I have a paper due tomorrow, and I would like you to check this paper for me."	NNES: I have a paper due tomorrow. I *would like* you to check it for me. Is that okay? NES: Sure, just send it to me. NES: When you are asking somebody to do you a favor, you probably want to say it more politely. In this case, you can use "*I wonder if*…" instead of "*I would like.*." NNES: oh, I didn't know that. I am so sorry. NES: that's fine. Don't worry.

Scoring of Test Items

The scoring criteria were adopted from Loewen (2005). Learners' responses to the test items were scored as (a) *Correct*: if the learner produced a response that correctly matched the targeted linguistic or sociolinguistic item in the LRE; (b) *Partially correct*: if the learner produced a response that improved on the targeted linguistic or sociolinguistic error in some

[6] As noted earlier, in the present study, since the pragmatic test items were completely based on the LREs that each student was responsible for during the negotiation, the baseline data for measuring each L2 learners' interlanguage pragmatics could be assumed to be coming from only one source of input—each EFL learner's respective partner.

way but was still not totally accurate; and (c) *Incorrect*: if the learner did not correctly produce the linguistic or sociolinguistic item in the LRE.

Data Analysis

All inferential statistics in the current study were performed by using SPSS 15.0. To answer the first research question, descriptive statistics for the occurrence of LREs of all dyads were calculated. After that, an independent two-sample t-test was used to test if there was significant difference between the NES-NNES and NNES-NNES dyads in the average amount of LREs they produced.

To answer the second research question, the distribution of linguistic (grammar, vocabulary, and spelling) and pragmatic-related LREs were calculated and compared for both NES-NNES and NNES-NNES dyads.

To answer the third research question, the distribution of tested LREs for each dyad was calculated. Chi-square analyses were used to reveal whether there were any significant differences between the frequency of LREs and the correct test responses for both the immediate and delayed tests in the NES-NNES and NNES-NNES dyads respectively. In order to compare if there was any significant difference between the test responses of the NES-NNES and NNES-NNES dyads in immediate test, delayed test, and the combination of both posttests, another three chi-square analyses were implemented across the two dyadic types. The significance level for all of the chi-square tests was set at alpha = .05. Adjusted standardized residuals of greater than the magnitude of 2.0 were used to serve as the threshold for identifying if there were any significant differences of the data examined.

To answer the fourth research question, multiple logistic regression analyses were administered on both NES-NNES and NNES-NNES dyads separately in order to uncover the best model to describe the relationship between the dependent variable (test responses) and independent variables (the 10 characteristics of LREs). Each independent variable was added to the logistic regression equation one by one, and each step added the variable that would result in the greatest change to the model. If an independent variable did not make a significant contribution to the model, it was excluded. The procedure selected the most significant variables until there were no more independent variables in the data set (Hosmer & Lemeshow, 2000).

TABLE 5
Binary Variables of Logistic Regression

Variable	Value=0	Value=1
Test score	Incorrect	Correct
Type	Reactive	Preemptive
Linguistic focus [a]	--	--
Source	Code	Message
Complexity	Simple	Complex
Directness	Direct	Indirect
Emphasis	Light	Heavy
Response	Provision	Elicitation
Timing	Immediate	Deferred
Uptake	No uptake	Uptake
Successful uptake	Unsuccessful uptake	Successful uptake

[a] Not reducible to a binary distinction.

An alpha level of .05 was set for stepwise regression in the present study, which is more stringent than the .15 set in Loewen (2005) and Shekary and Tahririan (2006). Because logistic regression analysis is only feasible for binary dependent variables, this study combined *partially correct* and *correct* test responses because both categories reflected learning in some degree. By doing this, the originally trichotomous coding categories for the

test responses (correct, partially correct, and incorrect) become binary categories. As for the independent variables, even though logistic regression analysis does allow for polychotomous independent variables, the interpretation of exponentiation of the Beta—exp (B)—is problematic for more than two categories (Loewen, 2005; Shekary & Tahririan, 2006). Exp (B) is the parameter of interest in logistic regression analysis because it estimates how much more likely it is for an outcome to occur among variables with value (1) than those with value (0). For example, if the dependent variable (test response) is coded as 0 = incorrect and 1 = correct, and independent variable of complexity (coded as 0 = simple and 1 = complex) has exp (B) of 3, then the correct response is three times more likely to occur in complex LREs than in simple LREs in the data set. Thus, for the sake of the interpretation of the results, the independent variables were also made as binary in the current study (see Table 5). Loewen's (2005) and Shekary & Tahririan's (2006) studies were chosen for comparison because no other study has used logistic regression to identify which characteristics of LREs could best predict learners' learning outcome.

Reliability of Coding

The researcher of the present study coded all of the LREs first. To estimate the reliability of the coding of the LREs, a colleague, who was trained by the researcher, coded 50% of the LREs and the NNESs' test responses on both posttests. Then, the kappa coefficients for both LREs and posttests coding were calculated (k = .95). In order to ensure the construct reliability of the test items, two trained EFL instructors reviewed all test items based on the related LREs. When any disagreement occurred, both of them negotiated to reach an agreement on the problematic LREs. As a result, around four percent of the total

test items were left out of the posttests because the disagreement between the two raters on the appropriateness of the test items remained unresolved.

RESULTS AND DISCUSSION

Research Question One

The first research question was intended to discover the occurrence of the learners' noticing in a SCMC setting, i.e. to examine if learners in both NES-NNES and NNES-NNES dyads similarly notice the gap in their interlanguage during negotiation of meaning in the context of synchronous task-based negotiations.

The distribution of the LREs. The distribution of the LREs for each dyad is reported in Table 6. The 30 dyads produced 828 LREs in total (with a mean of 27.6 and a SD of 10.92). Among them, the 16 NES-NNES dyads produced a total of 485 LREs (with a mean of 30.31 and a SD of 12.11) and the 14 NNES-NNES dyads produced a total of 343 LREs (with a mean of 24.5 and a SD of 8.79) in the text-based chats over an eight-week span.

As shown above, the NES-NNES dyads produced higher number of LREs compared to the NNES-NNES dyads (485 vs. 343). A possible explanation could be that while conversing with NSs, NNSs might be more likely to test their hypothesis and ask for feedback because they believe NSs are the optimal models on language use (Swain, 1998, 2000).

An independent two-sample t-test was used to test if there was a significant difference between the NES-NNES and NNES-NNES dyads in the average amount of LREs they produced. The result showed that there were no significant differences in this respect ($p = .149$, $\alpha = .05$).

TABLE 6
Frequency of LREs of NES-NNES and NNES-NNES Dyads

Dyadic Type	Dyads #	Total LREs	Rate of LREs per Minute	LREs per 10000 Words
NES-NNES	Dyad 1	35	0.05	46.55
	Dyad 2	30	0.06	32.55
	Dyad 3	32	0.06	45.53
	Dyad 4	48	0.06	47.19
	Dyad 5	38	0.06	43.12
	Dyad 6	16	0.02	26.13
	Dyad 7	18	0.04	18.38
	Dyad 8	37	0.06	29.55
	Dyad 9	13	0.02	19.28
	Dyad 10	28	0.05	28.30
	Dyad 11	49	0.08	40.33
	Dyad 12	44	0.10	34.60
	Dyad 13	32	0.07	28.90
	Dyad 14	11	0.02	10.10
	Dyad 15	18	0.04	15.07
	Dyad 16	36	0.08	31.29
	Total	485		
	Average	30.31	0.05	31.05
NNES-NNES	Dyad 1	37	0.05	16.82
	Dyad 2	20	0.04	30.87
	Dyad 3	29	0.06	35.20
	Dyad 4	39	0.05	29.93
	Dyad 5	17	0.03	17.05
	Dyad 6	13	0.03	24.97
	Dyad 7	11	0.02	13.70
	Dyad 8	26	0.04	19.80
	Dyad 9	24	0.03	17.84
	Dyad 10	25	0.03	28.97
	Dyad 11	22	0.03	14.26
	Dyad 12	15	0.02	22.89
	Dyad 13	32	0.04	24.66
	Dyad 14	33	0.03	34.20
	Total	343		
	Average	24.5	0.04	23.62

It means that both types of dyads can generate similar amount of LREs during the two-way text-based communicative tasks, implicating that NNESs could benefit from interacting with each others to a comparable level as with the NESs. In other words, our result suggests

that NNSs can benefit from interacting with both NSs and NNSs. NSs have some advantages, and NNSs have some others.

Previous literature has endorsed the importance of both NS-NNS and NNS-NNS interactions. The importance of NNS-NNS interactions, as an example, has been evidenced in Varonis and Gass (1985), in which negotiation of meaning occurred more frequently in NNS-NNS dyads than in both NS-NNS and NS-NS dyads. They concluded that NNS-NNS interactions provide them a "non-threatening forum" to build up their language competence and an opportunity to receive comprehensible input via negotiation (p. 87). On the other hand, Porter (1983) has empirically proved that NS-NNS interactions have some advantages over NNS-NNS interactions. She examined the frequency of interactions generated by NS-NNS and NNS-NNS dyads and found that the interactions between NS-NNS dyads quantitatively exceeded those between NNS-NNS dyads. She further suggested that NSs' natural language advantage allowed them to direct NNSs' attention to nontargetlike utterances. This suggests the inclusion of NSs in the task-based interaction is deemed important and beneficial because NSs may have a natural advantage in terms of their procedural knowledge about how to use their own variety of the target language and how to behave appropriately in the target culture (Pasternak & Bailey, 2004). In other words, NSs may play an important role in providing negative and positive linguistic evidence and in calling the learner's attention to it (Williams, 2001).

Frequency of LREs of NES-NNES and NNES-NNES dyads. The rate of LREs per minute was calculated because each dyad engaged in different amounts of time during the treatment period. As shown in Table 6, the rate of LREs ranges from .02 to .10 for the NES-

NNES dyads and .02 to .06 for the NNES-NNES dyads. The rates of LREs for both dyadic types in the current study are very close to that of Shekary and Tahririan (2006), which is reported to range from .01 to .15, but lower than those reported in Lyster (1998) and Ellis et al. (2002). However, the difference may be contributed to the characteristics of different mediums. Both Lyster's and Ellis et al.'s studies were conducted in a face-to-face (oral) interaction in a classroom setting, whereas the current study and Shekary and Tahririan's (2006) study were conducted in a two-way dyadic task-based online (written) interaction. Because the same amounts of time in these two different settings do not result in the same amounts of talk (Shekary & Tahririan, 2006), one can not conclude that face-to-face settings are more effective than online SCMC settings in promoting noticing based on the ratio of LREs per minute.

As a result, in order to allow comparison of the study results with other studies in different settings, the ratio of LREs to the total amount of the words generated by each dyad was also calculated. As illustrated in Table 6, the ratio of LREs per 10,000 words ranged from 10.10 to 47.19 (with a mean of 31.05) for the NES-NNES dyads and 13.70 to 35.20 (with a mean of 23.62) for the NNES-NNES dyads. These results showed that the ratio of LREs to amount of talk was higher for NES-NNES dyads compared to the NNES-NNES dyads.

Compared with two previous studies, the ratio of LREs to amount of talk in the current study are lower than that (56.78 to 136.98) of Shekary and Tahririan's (2006), but much higher than that (1.46 to 2.50) of William's (1999). The discrepancies between the current study and the two other studies could be related to different issues. The participants in

Shekary and Tahririan's (2006) study engaged in the online interaction in a computer lab of the same language institute; under such a highly controlled setting, their learners would be more likely to fully devote a higher level of cognitive load and attention to the negotiated interaction with their peers when compared to the participants in the current study, who engaged in the two tasks mostly at home, a non-controlled and relaxed environment. Furthermore, the NES-NNES participants had to overcome a 14-hour's time difference. Consequently, it was very difficult to completely control their amount of talk, the duration of online negotiation, and technological competence. On the other hand, the reason that the ratios of LREs to the amount of words in the current study is much higher than those of William's (1999) study may be contributed to the distinctive characteristics of SCMC over the oral interactions, as discussed in previous sections. Even though a statistically significant result was not found in this part of noticing, our findings suggest that the dyadic form of NS-NNS has some advantages over that of NNS-NNS in facilitating noticing in text-based online chat. Learners in the NS-NNS dyads not only had more instances of LREs, but also generated more LREs per 10,000 words and had a higher ratio of LREs per minute.

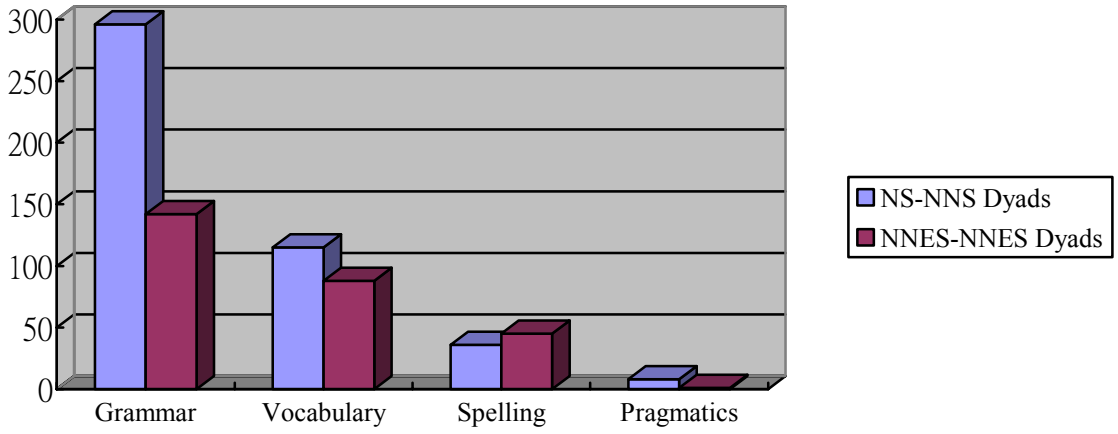
Research Question Two

The second research question entails the examination of the distribution of linguistic- and pragmatic-related LREs in the two types of dyads, i.e. to see if learners in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations. The distribution of linguistic- and pragmatic-related LREs are shown in Figure 1.

As noted, besides grammar, vocabulary, and spelling, the pragmatic aspect of

language was also investigated in the current study. According to Schmidt's (1990) noticing hypothesis, linguistic forms can serve as intake for language learning only if they are noticed by learners, and noticing is a necessary condition for L2 acquisition; this requirement of noticing is meant to apply equally to all aspects of language (lexicon, phonology, grammatical form, and pragmatics). When dividing the data set into the targeted linguistic (grammar, vocabulary, spelling) and sociolinguistic (pragmatic) features in the current study (see Figure 1), only 1.6% (8 out of 485) of the total LREs were pragmatic-related in the NES-NNES dyads and .3% (1 out of 343) in the NNES-NNES dyads, i.e., the learners of both dyads overwhelmingly focused on the lexical and grammatical issues during the negotiated meaning rather than the pragmatic aspects of language. Therefore, the answer to the second research question is *no*.

FIGURE 1
The Distribution of Linguistic- and Pragmatic-related LREs



This finding is consistent with Bardovi-Harlig and Dornyei's (1998) experimental study, in which EFL learners and their teachers consistently identified and ranked grammatical errors as more serious than pragmatic errors, and ESL learners and their

teachers showed the opposite pattern. This finding supports the notion that teaching pragmatic knowledge tends be neglected in EFL contexts at the expense of overly emphasizing grammatical accuracy.

FIGURE 2
Examples of Pragmatics-related LREs

Example 1 (politeness):
NNES 1: *Can I borrow your book tomorrow?*
NNES 2: *If you want to make some request*[s]. It's more polite, if you use could instead of can
NNES 1: *hum~*
NNES 1: *I see.*

Example 2 (distance):
NNES: *should I say hello or hey to my classmate*
NES: *say hey*
NES: *because its a peer*
NES: *someone your age*
NNES: *hmm?*

Example 3 (formality):
NNES: *I'll be really thankful for your help.*
NES: *I would probably say something in terms of "Thank you soooo much!"*
NES: *more casual conversation*
NNES: *m*
NES: does that help?
NES: a little?
NNES: YES!! A LOT.

Example 4 (directness):
NNES: *now I do really need some help because I am now planning the annual dance party*
NES: *start the sentence with what you want to say not now*
NES: *example:*
NES: *I really need some help.*
NES: *or "I am planning the annual dance party"*
NES: *not I am now planning the annual dance party.*
NNES: *aww, say it directly!*
NES: *yes*

Examining the targeted pragmatic features negotiated in those eight LREs in the NES-NNES dyads showed that various issues related to pragmatics were addressed, including four LREs on *politeness*, two on *formality*, one on *distance*, one on *directness*; the only

pragmatic LRE in the NNES-NNES dyads was about *politeness*. A few examples are shown in Figure 2.

Given that the NES-NNES dyads produced more pragmatic-related LREs than the NNES-NNES dyads (8 vs. 1), this implicates that NESs may be more sensitive to their interlocutors' pragmatic performance than the learners in the NNES-NNES dyads. This indicates the importance of offering NNSs legitimate access to NSs because most of the EFL classrooms are test-driven and tend to emphasize micro-level grammatical competence at the expense of macro-level pragmatic appropriateness (Bardovi-Harlig & Dornyei, 1998). EFL learners have limited access to communicative opportunities with NSs and usually lack pragmatic awareness. In a SCMC environment, Tudini (2003) examined the negotiation of meaning and modification of output raised from the interaction between NNSs-NSs of Italian in a NS chat room. The results showed that an online chat room could potentially facilitate SLA, and conversing with NSs in a chat room would provide NNSs "an authentic and purposeful cross-cultural experience" (p. 157).

Finally, the small number of pragmatic-related LREs in the current study implicates that simple exposure to the target language is insufficient because pragmatic functions and relevant contextual factors are often not salient to learners, and it is very difficult for L2 learners to notice or even pick up the pragmatic norms by themselves without directing their attention to form (Matsumura, 2003; Takahashi, 2005). As Schmidt (1993) argues, attention to "linguistic forms, functional meanings, and the relevant contextual features" is necessary for pragmatic learning to occur" (p. 35). On the other hand, Tudini's (2007) study on NS-NNS interaction in a chat room has evidenced that learners did notice some limited

pragmatic features incidentally while engaging in online meaning negotiation, which echoes LoCastro's (2003) contention that "It is through target language interactions that the learner acquires comprehensible input, not only grammatical and lexical, but also input on how to enact speech acts, carry out redressive action, and show deference successfully for the L2 target community" (p. 292).

Therefore, in order to induce more pragmatic noticing in both NS-NNS and NNS-NNS interactions, it may be essential to have learners engage in communicative tasks that are more conducive to negotiation of meaning on pragmatic aspects of language.

Research Question Three

The third research question is intended to find out whether learners could grasp and retain the forms they noticed during the online negotiation of meaning, i.e. to examine what effect, if any, does incidental noticing have on learners' subsequent language learning within and across the NES-NNES and the NNES-NNES dyads respectively.

The distribution of the tested and untested LREs. First, the distribution of tested LREs for each dyad is shown in Table 7. A total of 731 LREs (out of 828) were tested for all dyads, with 455 tested LREs in the NES-NNES dyads and 276 tested LREs in the NNES-NNES dyads. Moreover, there were 97 untested LREs out of the grand total of 828 LREs (11.7%) because either the participants failed to or did not solve the problem raised in the LREs or the raters failed to reach an agreement on the appropriateness of the test items.

It is worth noting that the ratio of the untested LREs to the total LREs in the NES-NNES dyads (n = 30, i.e. 6%) appeared to be much lower than the NNES-NNES dyads (n = 67, i.e. 20%). One possible explanation for the discrepancy in the ratio of the untested LREs

between the two dyadic types could be that since NSs are considered as authorities of the target language, more LREs lead to agreement than the negotiation of meaning between NNSs.

TABLE 7
Tested Language-Related Episodes of NES-NNES and NNES-NNES Dyads

NES-NNES Dyad	Immediate Test LREs	Delayed Test LREs	Total Tested	Total untested	Total LREs	Percent Tested
1	17	17	34	1	35	97%
2	14	14	28	2	30	93%
3	16	16	32	0	32	100%
4	24	24	48	0	48	100%
5	18	17	35	3	38	92%
6	8	7	15	1	16	94%
7	9	8	17	1	18	94%
8	16	17	33	4	37	89%
9	7	6	13	0	13	100%
10	13	13	26	2	28	93%
11	21	21	42	7	49	86%
12	19	19	38	6	44	86%
13	15	14	29	3	32	90%
14	6	5	11	0	11	100%
15	9	9	18	0	18	100%
16	18	18	36	0	36	100%
Total	230	225	455	30	485	94%
NNES-NNES Dyad	Immediate Test	Delayed Test	Total Tested	Total untested	Total LREs	Percent Tested
1	14	13	27	10	37	73%
2	8	7	15	5	20	75%
3	14	13	27	2	29	93%
4	17	17	34	5	39	87%
5	7	6	13	4	17	76%
6	6	5	11	2	13	85%
7	5	4	9	2	11	81%
8	13	12	25	1	26	96%
9	11	11	22	2	24	92%
10	11	10	21	4	25	84%
11	11	10	21	1	22	95%
12	6	6	12	3	15	80%
13	11	10	21	11	32	68%
14	9	9	18	15	33	55%
Total	143	133	276	67	343	80%
Grand Total	373	358	731	97	828	88%

In order to examine if there were any significant differences of the unsolved LREs due

to the learners' inability to resolve a (socio)linguistic problem between the two dyadic types, any untested LREs which originated from the disagreement between the two test raters were excluded before a chi-square analysis was employed. The results showed that there were statistically significant differences between the two types of dyads in terms of the ratio between the total solved LREs and unsolved LREs, with $X^2(2, n = 731) = 34.61$, $p = .00$. One possible explanation could be the lower language competence and confidence within the NNES- NNES dyads. Even though some advanced NNSs may have native-like language proficiency, they still may lack the confidence and the ability to provide their NNS counterparts with comprehensive feedback in L2 all the time (William, 2001).

On the contrary, it is natural for NSs to see themselves as the language role models to provide immediate feedback to NNSs (Kung, 2002; Pasternak & Bailey, 2004). The advantage of including NSs in a study is also reported in Lee's (2004) study, in which NSs, in many cases, assisted NNSs to articulate themselves through the effect of linguistic scaffolding. However, more research is needed in order to explore this issue further.

The results of immediate and delayed posttests. The descriptive statistics of the learners' test responses are displayed in Table 8. Overall, the learners generated 59.5% of the test responses correctly, and 66.8% when the correct and partially correct test responses were combined. Among them, the learners of the NNS-NNES dyads correctly recalled and reproduced 57.8% of the test items in the immediate posttest and 56.0% in the delayed posttest, which were slightly lower than those of the NNES-NNES dyads (61.5% in the immediate posttest and 66.2% in the delayed posttest). The percentage of incorrect answers was 31.3% in the immediate and 36.9% in the delayed tests for NES-NNES dyads whereas

33.1% and 30.1% for the NNES-NNES groups respectively.

TABLE 8
Descriptive Statistics of the Learners' Test Responses

Dyadic Types	Test Responses	Immediate		Delayed		Total	
		N	%	N	%	N	%
NES-NNES dyads	Correct	133	57.8	126	56.0	259	56.9
	Partially Correct	25	10.9	16	7.1	41	9.0
	Incorrect	72	31.3	83	36.9	155	34.1
	Total	230		225		455	
NNES-NNES dyads	Correct	88	61.5	88	66.2	176	63.8
	Partially Correct	7	4.9	5	3.8	12	4.3
	Incorrect	48	33.6	40	30.1	88	31.9
	Total	143		133		276	
Total	Correct	221	59.2	214	59.8	435	59.5
	Partially Correct	32	8.5	21	5.8	53	7.3
	Incorrect	120	32.1	123	34.4	243	33.2
	Total	373		358		731	

The descriptive statistics reported above are somewhat close to those reported in Shekary and Tahririan (2006) (70.3% in the immediate posttest and 56.7% in the delayed posttest) in SCMC. However, the results of the learners' test performance are better than those in Loewen (2005) (47.6% in the immediate posttest and 39.3% in the delayed posttest) in a face-to-face setting which could be attributed to the two unique features of CMC: visual information (Murphy, 2002) and more processing time for reading and typing messages (Smith, 2003a), which help the comprehension process and the acquisition of linguistic items. While these scores may not seem particularly high, it should be remembered that the targeted linguistic items were addressed incidentally in lessons that were not specifically designed to address these items (Loewen, 2003a).The results of the present study show that incidental noticing is effective for subsequent SLA in both NES-NNES and NNES-NNES task-based interactions through SCMC.

In short, even though previous studies have compared both NS-NNS and NNS-NNS dyads in various aspects of SLA and have shown that NS-NNS dyads surpass NNS-NNS dyads with relation to the communication strategies and grammatical accuracy (Brock, Crookes, Day, & Long, 1986; Gass, 1997; Long, 1983), the current study did not show any significant difference between the types of dyads with respect to noticing and subsequent L2 learning.

Furthermore, the fact that the learners in NNES-NNES dyads performed better in the delayed posttest (66.2%) than the immediate posttest (61.5%) may appear to be counterintuitive. One possible explanation may be that during the three weeks' period of time between the immediate and delayed posttests, learners might have incidentally paid more attention to and "re-noticed" the forms that had been negotiated in the LREs. According to Takahashi (2005), learners' higher awareness of the target forms is positively correlated with the appearance of those forms during their subsequent performance. Since the learners in the current study had noticed those targeted forms at least once in their LREs, it would be more likely for them to acquire those forms when their attention was drawn to the same forms again. Crookes and Rulon (1988) also suggested that if learners were to be exposed to or use the same linguistic forms over and over again, they would potentially have more possibilities to retain the negotiated linguistic elements.

Test responses. Two Pearson's chi-square tests ($\alpha = .05$) were used separately to reveal whether there were any significant differences in the distribution of correct responses on the

immediate and delayed tests within NES-NNES and NNES-NNES dyads respectively.[7] The results showed that there were no significant differences in the distribution of correct test responses between the immediate and delayed tests for both types of dyads, with $X^2(2, n = 455) = .236$, $p > .05$ for the NES-NNES dyads and with $X^2(2, n = 276) = .705$, $p > .05$ for the NNES-NNES dyads. The residuals showed that the differences between incorrect, partially correct, and correct responses were quite small (with the magnitude of 1.3, 1.4, and .4 for the NES-NNES dyads and .6, .5, and .8 for the NNES-NNES dyads), which indicates that the learners could similarly recall the forms they had noticed in the LREs over the three-week period between the immediate and delayed posttests regardless of the dyadic forms. Compared with Loewen (2005) and Shekary and Tahririan (2006), our results are encouraging because the learners performance decreased significantly from the immediate to the delayed posttests in those two studies.

Finally, in order to vertically compare if there was any significant difference between the correct, partially correct, and incorrect test responses of the two dyadic types in the immediate posttest, delayed posttest, and the combination of both posttests, another three chi-square analyses were implemented respectively. The chi-square statistics were $X^2(2, n = 373) = .134$, $p > .05$ for the immediate test, and $X^2(2, n = 358) = .124$, $p > .05$ for the delayed test, and $X^2(2, n = 731) = .129$, $p > .05$ for the combination of both tests, which indicated that there were no significant differences in any test response categories between these two

[7] In order to explore the possible relationship between the two posttest results, in addition to the chi-square analyses, the researcher also transformed the categorical data into numerical data by assigning two points to correct responses, one point to partially correct responses, and no point to incorrect responses. After calculating the percentage of each participant's scores (divided by his/her maximum possible scores) in the immediate and the delayed tests, two paired t-test analyses ($\alpha = .05$) were performed, one for each dyadic type. The results showed that there were no significant differences between the results of the two investigated dyadic types, with $p = .672$ for the NES-NNES dyads and .741 for the NNES-NNES dyads.

types of dyads. The residuals of the chi-square analyses were no greater than plus or minus 2.0, ranging from the magnitude of .6 to 1.8. Again, the results showed that the dyadic types had no significant effects on the learners' performance on the posttests. In other words, learners can similarly benefit from engaging in task-based communicative discussion in a SCMC setting regardless of the dyadic types.

In sum, although NSs are considered by some researchers as ideal language models and learners may get more motivated by interacting with them (Kitade, 2005; Kung, 2002; Pasternak & Bailey, 2004), our result showed that there was no significant difference between NS-NNS and NNS-NNS dyads as far as noticing and subsequent SLA is concerned. Therefore, the answer to the third research question is *yes*. Considering the salient proficiency difference between the low-intermediate and advanced learners of the NNES-NNES dyads, this result can be contributed to the interrelationships between linguistic (Lee, 2008; Lier & Matsuo, 2000; Smith, 2004) and affective factors (Arnold, 2007; Lee, 2004; Liu, 2006).

With respect to the linguistic factors, it can be argued that the advanced learners of the NNES dyads could, to some extent, function as the NESs in the NES-NNES dyads and provide scaffolding for the less proficient learners since (1) NNSs can serve as "experts, coaches, or more competent peers" during their CMC interaction, and they can and do learn from one another (Smith, 2004, p. 388); and (2) more proficient learners in NNS-NNS dyads would use interactional resources similar to those used by NSs in NS-NNS dyads, but less proficient learners would not (Lier & Matsuo, 2000). Lee (2008) studied the communicative interactions between NNS-NNS dyads in an online setting and suggested that the more

proficient learners of Spanish acted as both teachers and peers while interacting with their less proficient interlocutors during the feedback negotiation process, and higher-proficient learners could offer scaffolding at important moments to direct learners' attention to the nontargetlike forms. Also, Shehadeh (1999) studied the modified output between NS-NNS and NNS-NNS interactions and concluded that when the NNSs in the NNS-NNS dyads have to cope with the pressure of producing comprehensible output for their peers, they extend and utilize their IL capacity to the limit. In most cases, attention to form in the LREs was related to accurate performance on the test (Williams, 2001). Similar results were found in Pellettieri (1999), in which she found that intermediate learners of Spanish were still able to generate native-like forms through online negotiation.

As far as affective factors are considered, research has investigated the relationship between L2 learners' anxiety and their language proficiency in both face-to-face classroom (Liu, 2006) and CMC settings (Lee, 2004). As an example, Liu's study found that a considerable number of Chinese EFL learners of all three different proficiency levels felt anxious when speaking English in class, but the more proficient learners tended to be less anxious. Even though previous studies have claimed that CMC can lower L2 learners' anxiety levels when compared to face-to-face contexts (Kern, 1995; Warschauer, 1996), Arnold (2007) found that there was no difference in the anxiety levels of learners' group discussions between the CMC and face-to-face settings. In addition, Lee reported that in NS-NNS interactions, some NNSs' self-confidence was negatively influenced by their lower language proficiency. Also, some NNSs were frightened because they regarded their NS peer as an authoritative figure in language. Therefore, it is reasonable to assume that the less

proficient learners in the NES-NNES dyads of the current study may experience a greater degree of anxiety than the less proficient learners in the NNES-NNES dyads. As has been discussed, both proficiency and anxiety factors may help to explain why the NES-NNES dyads did not perform significantly better than the NNES-NNES dyads on the posttests.

Research Question Four

The fourth research question entails the use of multiple logistic regression analyses to uncover the best model to describe a relationship between the dependent variable (test responses) and independent variables (the 10 characteristics of LREs) for both types of dyads, i.e., to explore what characteristics of LREs best predict the learners' L2 learning in a text-based CMC setting in NES-NNES dyads and NNES-NNES dyads respectively. In order to provide enough sample size for logistic regression analyses, the immediate and delayed posttest results were combined. The results of the logistic regression analyses are presented in Table 9.

The results of the logistic regression analyses for NES-NNES dyads. For the NES-NNES dyads, the predictor variables that entered into the model of the grammar test were type, source, and successful uptake. Among the three variables, source was the strongest variable, which had an exp (B) of 4.545, meaning that correct responses were four and a half times more likely when the tested LREs were code-related instead of message-related. In addition, type was the second strongest variable, which had an exp (B) of 3.409, indicating that preemptive (learner-initiated) LREs were almost three and a half times more likely to result in correct test responses than reactive LREs (corrective feedback). Furthermore, LREs

with successful uptake were almost three times more likely to result in correct test responses than unsuccessful uptake.

TABLE 9
Logistic Regression Results of Test Types for the NES-NNES and NNES-NNES Dyads

Dyad Type	Test type	Predictor variables	95% Confidence Intervals		Exp (B)	P-value
			Lower	Upper		
NES-NNES Dyads	Grammar	Type	1.072	8.673	3.409	0.037
		Source	0.102	0.474	0.220 (4.545)*	0.000
		Successful Uptake	1.590	4.587	2.700	0.000
	Vocabulary	Source	0.041	0.601	0.158 (6.329)*	0.007
		Complexity	1.250	11.296	3.785	0.018
		Successful Uptake	1.245	17.532	4.671	0.022
	Spelling [a]	--	--	--	--	--
	Pragmatics [a]	--	--	--	--	--
NNES-NNES Dyads	Grammar	Successful Uptake	0.087	3.263	1.898*	0.033
	Vocabulary	Timing	0.045	0.860	0.196 (5.102)	0.031
		Successful Uptake	1.409	19.247	5.208*	0.013
	Spelling [b]	--	--	--	--	--
	Pragmatics [b]	--	--	--	--	--

[a] The sample sizes for the spelling test (n = 36) and pragmatics test (n = 8) are too small to make claims.
[b] The sample sizes for the spelling test (n = 45) and pragmatics test (n = 1) are too small to make claims.
Note 1: The predictor variables with exp (B)s of less than 1 were also calculated into their reciprocal values (when y = 0). These numbers are presented in parentheses.
Note 2: The predictor variables with the highest exp (B) in each model are marked with an asterisk (*).

On the other hand, the three variables that entered into the model of the vocabulary test were source, complexity, and successful uptake. Again, source appeared to be the strongest one among these three variables, which had an exp (B) of 6.329. This indicates that code-related LREs were more than six times more likely to result in correct test responses than message-related LREs. The second strongest variable was successful uptake, with an exp (B) of 4.671, which means that when learners generated successful uptake in a LRE, the chances that they answered the corresponding vocabulary test item correctly were around 4.7 times

more than unsuccessful uptake. Even though complexity was the least strong variable in the vocabulary test, its exp(B), 3.785, was still very high, representing that complex LREs were almost four times more likely to result in correct test responses than simple LREs.

The results of the logistic regression analyses for NNES-NNES dyads. As for the NNES-NNES dyads, successful uptake was the only significant variable that entered in the model in the grammar test, with an exp (B) of 1.898, meaning that LREs with successful uptake were almost twice more likely to result in correct test responses than LREs without successful uptake. The last regression analysis administrated on the vocabulary test of the NNES-NNES dyads resulted in two significant variables that entered the model: timing and successful uptake. Successful uptake, with an exp (B) of 5.208, was the strongest predictor in the vocabulary test, which means that LREs with successful uptake were more than five times more likely to result in correct test responses than LREs without successful uptake. The exp (B) of timing was 5.102, which means if learners were provided with immediate feedback in the turn after a question or a problematic linguistic item was raised, they were around 5 times more likely to answer the corresponding test item correctly than deferred feedback.

Successful uptake. The fact that successful uptake entered into all models of both grammar- and vocabulary-related tests across the two dyadic types qualifies it as the most prevalent predictor of the learners' subsequent L2 learning in the current study. Two theoretical foundations can be adopted to address the positive correlation between successful uptake and SLA. First, successful uptake permits learners to practice the target forms and thus may help them to transfer their explicit knowledge into implicit knowledge (Ellis et al.,

2001a). Second, the pushed output (Swain, 1995), i.e. successful uptake, assists SLA since it forces learners to focus on forms rather than meanings and thus enables them to modify problematic hypotheses about the target forms. Our finding coincides with Loewen's (2005) study in a NS (teacher)-NNS face-to-face setting and Shekary and Tahririan's (2006) study in a NNES-NNES SCMC setting, in which both research empirically validated the significance of the successful uptake in comparison to the mere presence of uptake. This indicates that incidental focus on form could be beneficial to learners, especially when learners incorporate the targeted forms into their own production (Ellis et al., 2001a; Lyster & Ranta, 1997).

Source. In addition to successful uptake, the variables of source also entered into the regression models of the grammar and vocabulary tests in the NES-NNES dyads. In other words, negotiation of code positively affected learners' noticing and its retention rate than negotiation of meaning. As noted earlier, because most of the EFL classrooms are test-driven and tend to emphasize micro-level grammatical competence (Bardovi-Harlig & Dornyei, 1998), it is natural for the learners to pay extra attention to the code-related negotiation in order to increase their linguistic accuracy. Bardovi-Harlig and Dornyei's (1998) experimental study explored the extent to which instructed L2 learners of English were aware of differences in learners' and target-language production in grammar and pragmatics. The results showed that EFL learners and their teachers consistently identified and ranked grammatical errors as more serious than pragmatic errors. In addition, Ellis et al. (2001a) found that the majority of focus on form in their observations resulted from negotiation of code (75%) rather than negotiation of meaning (25%). Therefore, given that

EFL learners are instructed with heavy emphasis on grammatical competence and accuracy and view grammatical errors to be more serious than pragmatic ones (Bardovi-Harlig & Dornyei, 1998), the results of this study are not surprising. The number of the pragmatic-related LREs in the NES-NNES dyads was much lower than the linguistic-related ones (8 vs. 485).

Type. The last significant variable that entered into the grammar test of the NES-NNES dyads was type, in which the preemptive (learner-initiated) LREs were significantly correlated with the learners' performance on the posttests. A preemptive LRE can be seen as indicating a learner's difficulty with a linguistic item since the learner is raising a query about that item (Loewen, 2002). Some previous studies have also endorsed the importance of preemptive LREs on learners' subsequent learning. For example, Ellis et al. (2001b) examined preemptive focus on form in ESL face-to-face classroom between learners and teachers. They found that in 12 hours of meaning-focused instruction, there were as many preemptive focus-on-form episodes (FFEs) as reactive FFEs. The majority of the preemptive FFEs were initiated by students, and students were more likely to uptake a form if the FFE was student initiated. Along the same line, Leow's study (1998) also endorsed that learner-centered exposure to morphological forms in Spanish appears to facilitate an overall superior ability to take in and produce these forms in writing when compared to teacher-centered exposure to the same linguistic forms. Kitade (2000) evaluated the potential impact of CMC on L2 learning between NNSs of Japanese. She found many instances of learner-initiated repair and negotiation of meaning in NNS-NNS chats, which suggests that online task-based discussion "facilitates comprehensible and meaning-making interaction,

awareness raising, as well as collaborative learning" (p. 162). Smith (2004) also found that learners provided one another with preemptive input, which is rather beneficial in assisting their peers to acquire target forms.

Therefore, learner-initiated LREs appear to be one of the most important characteristics to induce noticing and result in long-term memory of the targeted structures. In addition, the reason that preemptive LREs only appeared to be an important variable in the NES-NNES dyads instead of the NNES-NNES dyads may be that NNSs usually view NSs as language authorities and this belief may motivate them to seek more help whenever they need any language-related input.

Complexity. Complexity was shown to be another significant factor in affecting the vocabulary test scores of the learners in the NES-NNES dyads, but not in the NNES-NNES dyads. This indicates that complex LREs appeared to be more helpful on producing correct vocabulary-related test responses than simple ones when learners were interacting with the NESs rather than the NNESs. A complex LRE requires multiple responses and/or uptake moves (Loewen, 2004) and NESs may be more capable of producing long and sophisticated feedback than NNESs because of their linguistic ability (Pasternak & Bailey, 2004). Similar to our findings, Loewen's (2004) study examined which characteristics (including directness, emphasis, timing, response, uptake, and successful uptake) of incidental focus on form predicted uptake and successful uptake, and the results showed that complexity was one of the LRE characteristics that influenced both the production of uptake and its success. Thus, he concluded that complex LREs involving multiple turns between the teacher and the student were more likely to result in both uptake and successful uptake. Successful uptake

was more likely to occur when students focused on linguistic problems that they perceived as important and when they had the chance to negotiate extensively around a problem.

Given that successful uptake is the most prevalent predictor of learners' subsequent learning in the current study and the relationship between complex LREs and successful uptake has empirically proved to be positive, it is logical to contend that complex responses can facilitate learners' retention of the linguistic items contained in the LREs, which coincides with the findings of the current study.

Timing. In addition to the LRE characteristics discussed above, timing, with the exp (B) of 5.102, was shown to be the second powerful predictor of the vocabulary test scores in the NNES-NNES dyads. Generally speaking, the fact that immediate LREs are more effective in promoting learners' noticing and their correct recall of the test items seems intuitive because most focus on form happens immediately after the trigger (Loewen, 2004). Ellis et al. (2001a) also examined the timing of the feedback in their study, finding that the overwhelming majority of feedback moves were immediate (92%) rather than delayed (8%). In addition, considering the restraint of working memory, immediate treatment is more helpful than deferred treatment in assisting learners to integrate the target forms into their interlanguage (Doughty, 2001) because it occurs at the time when the information is most needed (Doughty & Long, 2003).

However, the findings with regard to the effect of immediate feedback in LREs in the present study contradict those reported in Shekary and Tahririan's (2006) study, in which deferred LREs were roughly one and a third times more likely to lead to correct responses when compared with immediate LREs. They argued that deferred LREs in their study often

occurred when learners went through their errors at the end of a task, which drew attention to them explicitly. Although it may not be possible to know whether or not learners in Shekary and Tahririan's study were required to review their chat logs after each session, it is arguable that learners' frequent reviews of the chat logs would potentially blur the distinction between incidental and planned focus-on-form. Since the current research was designed to be a study on incidental noticing and learners were not asked to review their chat logs at the end of each task, deferred LREs wouldn't occur as they did in Shekary and Tahririan's study. Therefore, the contradiction of the effect of timing between Shekary and Tahririan's and the current study may be partially attributed to this methodological difference. Nevertheless, this explanation is speculative and warrants further investigation.

Finally, although immediate feedback was found to be positively correlated with learners' grammar test scores in the NNES-NNES dyads of the current study, similar effect was absent from the NES-NNES dyads even though NSs' proficiency in their first language may allow them to better control the conversation flow and offer more immediate feedback and comprehensible (modified) input to their NNS counterparts (Long, 1983). When inspecting the relationship between immediate feedback and uptake/successful uptake in detail, the results showed that even though learners in both dyad types provided immediate feedback to their peers around 90% of the time, the learners in the NES-NNES dyads responded to the NESs' immediate feedback 71.9% of the time with an uptake or successful uptake move, which is lower than the 86.1% in the NNES-NNES dyads. This indicates that the learners in the NNES-NNES dyads put more effort into incorporating the received feedback into their language output (uptake and/or successful uptake) which should result in

a higher level of accuracy on subsequent L2 production (Rosa & Leow, 2004). This may help to explain why the NESs' immediate feedback did not facilitate their peers' test performance as much as those in the NNES-NNES dyads. Needless to say, more research on the effect of immediate and delayed feedback on SLA in NS-NNS and NNS-NNS interactions is certainly needed.

CONCLUSION AND IMPLICATIONS

The results of the current research endorses that the SCMC medium can enhance the occurrence of learners' incidental noticing and their subsequent L2 learning in both NES-NNES and NNES-NNES dyads. Even though the NES-NNES dyadic negotiations resulted in higher amounts of LREs than did the NNES-NNES dyads, no statistically significant differences were found between them. This finding indicates that NNESs can benefit equally from engaging in a task-based negotiation of meaning in a SCMC setting regardless of the dyadic form. Interestingly, the ratio of the total tested LREs and the unsolved LREs (caused by the learners' inability to reach a conclusion during their negotiations) in the NNES-NNES dyads was significantly higher than the NES-NNES dyads. In order words, the NES-NNES dyads generate more instances of LREs, but significant fewer instances of unsolved LREs when compared to the NNES-NNES dyads. In addition, both the ratio of LREs per minute and number of LREs per 10,000 words were higher in the NES-NNES dyads than the NNES-NNES dyads. These results indicate that there is a tendency for better noticing in the NES-NNES dyads than the NNES-NNES dyads although the differences in the amount of noticing between these two dyadic types were not statistically significant.

Based on the learners' performance on both posttests, the results show that incidental noticing is effective for subsequent SLA in both NNES-NNES and NES-NNES task-based interactions through SCMC. Although the NNES-NNES dyads performed slightly better than the NES-NNES dyads in both posttests, no significant differences were found both within and across dyads through chi-square analyses.

Through logistic regression analyses, four LRE characteristics (code, preemptive, complex, and successful uptake) in the NES-NNES dyads and two LRE characteristics (immediate feedback and successful uptake) in the NNES-NNES dyads were shown to be significant variables of the learners' subsequent L2 learning. The only commonality between the two dyadic types is successful uptake, which has been theoretically and empirically proven to be the most powerful predictor of subsequent L2 learning by previous studies (Ellis et al., 2001a; Loewen, 2004, 2005; Shekary & Tahririan, 2006). As noted earlier, even though no significant differences were found between the amount of LREs produced by the learners and their performance on the two posttests between these two dyadic forms, the results of the logistic regression models suggest that the fundamental nature of one-on-one task-based meaning negotiation between the NES-NNES and the NNES-NNES dyads may be very different. The variables, which had a significantly positive effect on the learners' subsequent L2 learning in the NES-NNES dyads, include code-related, preemptive (learner-initiated), and complex LREs. On the other hand, only one variable (LREs with immediate feedback) had a significantly positive effect on the learners' subsequent L2 learning in the NNES-NNES dyads.

With respect to pragmatic aspects of language, our results showed that, negotiation on linguistic (grammar, vocabulary, and spelling) features are much more prevalent than the sociolinguistic (pragmatic) features. This result is consistent with Ellis et al's (2001a) study, in which the great majority of FFEs addresses lexical or grammatical problems. The reason that only a handful of pragmatics-related LREs were found in the current study may be due to the fact that the tasks were not designed to intentionally direct learners' attention to any preplanned pragmatic features. This could be the reason that the majority of the studies on interlanguage pragmatics focus on either focus-on-forms or planned focus-on-form (Bouton, 1994; Fukuya & Zhang, 2002; Martinez-Flor and Fukuya, 2005; Takahash, 2001, 2005). Given that pragmatic knowledge tends be neglected in EFL contexts at the expense of overly emphasizing grammatical accuracy (Bardovi-Harlig & Dornyei, 1998) and socio-cultural factors can be used to foster dialogue between interlocutors (Swain, 2001), it is important to construct tasks that are more conducive to noticing of pragmatic aspects of language and offer NNSs legitimate access to both NSs and ESL/EFL interlocutors since English is so commonly taught and learned around the world.

Methodologically, in order to empirically authenticate the instances of incidental noticing and its effect on L2 learners' SLA in a task-based CMC context, the occurrence of LREs was conceptualized as the pretest and two individual tailor-made tests were served to be the posttests in the current study. Similar to Loewen (2005) and Shekary and Tahririan (2006), this quasi-experimental study has, once again, demonstrated that research on incidental noticing does not have to remain descriptive or exploratory in nature (e.g., Ellis, et al., 2001a, 2001b; Lowen, 2003a, 2004; Schmidt & Frota, 1986; William, 1999, 2001).

Also, thanks to the advance of the technology, the chat logs of the online interaction between learners can be easily saved. Learners can review and reflect upon those chat logs at a later time at their leisure, and researchers can use those chat logs as a demonstration of the development of learners' IL (Shekary & Tahririan. 2006). Besides, the attempt to compare the effect of incidental noticing on both linguistic and sociolinguistic aspects between both NES-NNES and NNES-NNES dyads is another potential contribution that the current study makes to the existing literature of SLA. Certainly, more research is needed in order to further ascertain the similarities and differences between these two types of dyadic interaction on noticing. Given that EFL students and teachers tend to pay more attention to grammatical than pragmatic forms and ESL students and their teachers show the opposite pattern (Bardovi-Harlig & Dornyei, 1998), it would be insightful to see if ESL learners who live in the target culture may notice pragmatic aspects of language more than EFL learners.

Pedagogically, even though noticing does occur in face-to-face classroom settings (Loewen, 2002, 2004, 2006; Williams, 1999, 201), the interaction between each individual student may be fairly limited compared to one-to-one dyadic interaction through SCMC. In order to provide L2 learners with more opportunities to notice the gaps and incorporate the corrective feedback they receive into their IL system, teaching or instructional activities should include opportunities for learners to consciously notice and focus on the targeted linguistic and sociolinguistic forms.

Finally, some limitations of the current study need to be noted. First, technological failure could sometimes get in the way, which might result in the missing of the chat logs or the breakdowns of the ongoing discussion between the learners. Secondly, when the learners

in the NES-NNES group had difficulties overcoming the 14-hour time difference to find a time to chat during a given week, they had to move their discussion on that specific task a week before or after. So, the learners could have been overwhelmed while they had to chat twice in a week, and the quality of their discussion could have been negatively affected to some extent. Third, due to lack of a control group, the results of the current study could not be compared with a control group, which is an obvious limitation. Finally, even though the findings of this study suggest that the more the learners notice, the more they learn,[8] regardless of their dyadic type, researchers should interpret the results with caution. Since the learners' test performance was assessed under a controlled context, their correct test responses may not necessarily equal to SLA.

SUGGESTIONS FOR FUTURE RESEARCH

There are some suggestions for future research based on the findings of the current study. First, the current study only included two types of communicative tasks (jigsaw and decision-making). Different task types, such as information-gap and problem-solving tasks, may have different effects on L2 learners and result in different findings (Long, 1996; Crookes & Rulon, 1988; Nakahama, Tyler, & Lier, 2001; Pica et al., 1993). Therefore, it is suggested that future research on incidental noticing include more varieties of communicative tasks and examine the effect of task type on incidental noticing of learners. Closer examination of the activities could assist researchers, educators, and task designers to determine if different task types would influence the frequency and characteristics of the

[8] Since there were no differences in the retention rate of the targeted forms across the two dyadic types, a learner who was tested for 20 tailor-made items would be deemed to learn twice as much as a learner who was only tested for 10 tailor-made items. Even though noticing is a prerequisite of SLA, it does not necessarily guarantee learners can transfer the noticed input into their implicit knowledge (Ellis, 1991; Schmidt, 1990; Swain, 1985).

negotiated forms (Loewen, 2003a). Second, since only limited amount of pragmatic-related LREs were found in the current study, it is suggestive for the future research to design tasks that are more conducive to pragmatic noticing. Finally, as noted earlier, with minor pedagogical intervention, negotiation and intercultural learning can also occur in a one-on-one NS-NNS online discussion (Tudini, 2007). Therefore, it may be necessary to impose some methodological or pedagogical interventions on future research of incidental noticing in order to elicit more culturally- and sociolinguistically-focused negotiations from learners' communicative interactions in SCMC.

CHAPTER III

LEARNERS OF DIFFERENT LANGUAGE PROFICIENCY LEVELS AND INCIDENTAL NOTICING IN SYNCHRONOUS TEXT-BASED DISCUSSION: AN INVESTIGATION OF BOTH NES-NNES AND NNES-NNES DYADS

OVERVIEW

The purpose of this study was to explore the impact of incidental noticing on learners of different proficiency levels between dyads of native English speaker (NES) vs. nonnative English speaker (NNES) and NNES vs. NNES in a computer-mediated communication (CMC) environment. Sixty participants were included to form 30 dyads in this study. At random, eight low-intermediate (Group A) and eight advanced NNESs (Group B) were paired with 16 NESs to form the 16 NES-NNES dyads; another 14 advanced NNESs (Group C) and 14 low-intermediate NNESs (Group D) were paired to form the 14 mixed-proficiency NNES-NNES dyads. The results with respect to the occurrence of incidental noticing showed that (a) the low-intermediate learners of the NNES-NNES dyads had significantly higher level of incidental noticing of the gaps in their interlanguage (IL) than their advanced peers; and (b) both low-intermediate and advanced learners significantly benefited more from interacting with the NESs than with the different-proficient NNESs. In addition, with respect to the relationships between the learners' language proficiency and test performance on the two posttests, the chi-square analyses revealed that there were no significant differences between them. Finally, through logistic regression analyses, the results showed that successful uptake appeared to be the most prevalent predictor. Proficiency appeared to be the second prevalent variable but played a different role in these

two dyadic types. Considering the linguistic aspects focused in the LREs, negotiations of the linguistic features of grammar, vocabulary, and spelling were much more prevalent than the sociolinguistic aspects of pragmatics.

INTRODUCTION

The importance of focusing on form, which would be either planned or incidental, is based on three principle claims about L2 acquisition: (a) "learners acquire new linguistic forms as a product of attending to them in contexts where the primary concern is with message rather than code"; (b) "learners frequently experience difficulty in attending to and producing linguistic forms in communication because they possess a limited information-processing capacity" (VanPatten, 1990); and (c) "learners benefit from the opportunities that arise in communication to give focal attention to form" (Ellis et al., 2001a, p. 281-282). Planned focus-on-form focuses on preselected form, but attention to form is raised while learners are engaged in meaning related activities (Ellis et al., 2002). However, as planned focus-on-form, incidental focus-on-form[9] also involves primary attention to negotiation of meaning but without focusing on any preselected form, so the focus could be any form arising incidentally (Ellis, 2001). In contrast with planned focus on form, fewer studies have examined the effects of incidental focus on form (Loewen, 2005; Shekary & Tahririan, 2006; Williams, 2001). Although past research has recognized the affirmative impact of incidental noticing during learners' interaction and negotiation of meaning on second language learning in face-to-face contexts (Ellis et al., 2001a; 2001b, 2002; Loewen, 2002, 2003a,

[9] Since "noticing," proposed by Schmidt (1990), is one of the most important cognitive constructs underpinning incidental focus-on-form, in this study, incidental noticing and incidental focus-on-form are used interchangeably.

2003b, 2005; Loewen & Philp, 2006; Murphy, 2002; Schmidt & Frota, 1986; Williams, 1999, 2001), the understanding of the acquisitional effect of incidental noticing on Second Language Acquisition (SLA) remains under-investigated.

Networked computers have led to an increase in communicating. During online discussions, students may function mainly within a construction similar to that of face-to-face communication by the means of writing (Kern, 1995). Computer-mediated communication (CMC) resembles writing in its lack of intonation, the enduring record of the discourse, the density of lexical features, and the use of punctuation and textual formatting in messages, and on the other hand, the characteristics similar to spoken language are the real-time communication, the use of stressed words through italics or bolding, the use of the first person, and the informality (Smith, 2003a). Two inherent features of synchronous CMC (SCMC) which might promote noticing are (1) longer processing time and (2) relative permanency of the text. Text-based online chat might help the learners feel less time pressure, enabling them to pay more attention to and elaborate more on their output (Lai & Zhao, 2006; Shekary & Tahririan, 2006). Similarly, Beauvois (1992) describes online chatting as conversation in slow motion because the CMC interface slows down the communicative interaction while largely retaining its real-time interactive nature. Second, learners can save the discourse record, review their output, and make necessary revisions. This self-editing capacity afforded by text-based online chat increases the learners' noticing of their own errors.

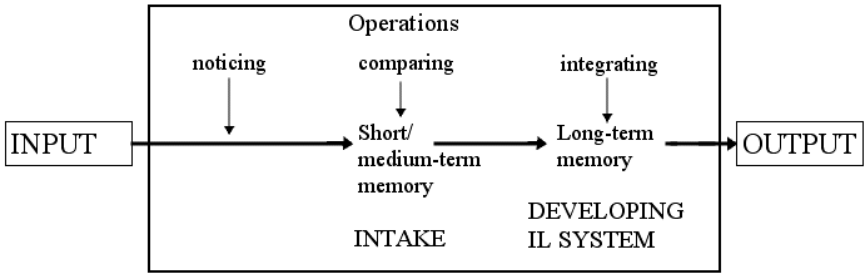
With all these positive capacities of CMC, the scholarly literature has not yet provided a thorough investigation of the SCMC medium itself, particularly the association between

text-based online chat and L2 acquisition. Only a few studies have investigated L2 learners' incidental noticing of linguistic or sociolinguistic aspects in a CMC setting (Lai & Zhao, 2006; Shekary & Tahririan, 2006; Tudini, 2007). In addition, studies on the effect of learners' proficiency levels on incidental noticing are also sparse (Williams, 1999, 2001). The aforementioned studies on incidental noticing have examined learners' interactions either between native speaker (NS) teachers and non-native speakers (NNS) of the target language or between NNS-NNS. The purpose of this study is to fill these gaps by exploring the impact of incidental noticing on learners of different proficiency levels between dyads of native English speakers (NES) and nonnative English speakers (NNES) and dyads of NNES-NNES in a SCMC environment.

NOTICING IN SLA

Figure 3, proposed by Ellis (1997), is a model to explain the noticing hypothesis (Schmidt, 1990, 1995, 2001) and its impact on SLA.

FIGURE 3
The Process of Learning Implicit Language Knowledge (Ellis, 1997, p. 119)



In the first stage (input becomes intake), learners have to notice language features in the input, absorb them into their short-term memory, and then compare them to features produced as output. In the second stage, intake is absorbed into the learner's interlanguage

(IL) system, and changes to this system can only occur if language features are integrated into long-term memory.

In addition, according to Swain (2000), there are several levels of noticing: (1) learner may notice something in the target language because it is salient or frequent; (2) learners may not notice the target language form, but notice that it is different from their own IL, i.e., noticing the gap (Schmidt & Frota, 1986); and (3) learners may notice that they do not know how to express precisely the meaning they wish to convey at the very moment of attempting, i.e. they notice a 'hole' in the IL. For example, while working together on tasks, learners notice holes in their linguistic knowledge and then they usually try to fill them by turning to a dictionary or grammar book, by asking their peers or teachers, or by noting to themselves to pay attention to future relevant input. Even though noticing is an internal and private process and can't be observed directly (Schmidt, 1993), incidental learning is possible and effective when learners' attention is focused on what is to be learned. With planned focus on form, both pretest and posttest can be used to assess learners' gains in the use of the targeted form. However, with incidental focus on form, conducting such a pretest is not possible because one can never predict what forms will arise incidentally during a meaning-focused activity (Swain, 2001). Hence, most of the incidental noticing studies have been conducted descriptively or explanatorily (Ellis et al., 2001a, 2001b; Loewen, 2003a, 2004; Schmidt & Frota, 1986; William, 1999, 2001).

While theories on SLA are insightful, only empirical research can serve to validate them. As suggested by Swain (2000), from a research perspective, researchers need to find new methodologies to better posit noticing in SLA. Although previous studies have

described the occurrence of incidental noticing and uptake, only a handful of empirical research has investigated the relationship between noticing and SLA in face-to-face contexts (Loewen, 2002, 2005; Loewen & Philp, 2006; Williams, 2001). Even fewer studies have explored the cognitive effects of text-based *online* discussion on noticing (Lai & Zhao, 2006; Shekary & Tahririan, 2006; Tudin, 2007). These studies have suggested that SCMC could promote more noticing of problematic linguistic forms, which, in turn, has more possibility to assist SLA. The present study aimed to add to the emerging literature on the contextual factors that could possibly affect noticing. Specifically, the study intended to find out (1) whether text-based online discussion would help English as foreign language (EFL) learners notice both their problematic linguistic output and the interactional feedback from their NES or NNES interlocutors, and (2) how the effect of noticing is associated with L2 learners' proficiency levels and their subsequent L2 learning in a SCMC setting.

INTERACTIONAL EFFECTS OF DYADIC TYPES AND PROFICIENCY

A number of studies have investigated the interactional effects between NS-NNS and NNS-NNS dyads on different aspects and under different contexts, including (1) input modifications (Long, 1981, 1983; Rulon & McCreary, 1986; Varonis & Gass, 1985) and output modifications (Adams, 2003; Gass & Varonis, 1994; Pica, Holliday, Lewis, & Morgenthaler, 1989; Oliver, 1995; Pica, 1988; Philp, 2003; Polio & Gass, 1998; Shehadeh, 1999; Yule & Powers, 1994) in face-to-face contexts, and (2) negotiation of meaning and output modifications (Iwasaki & Oliver, 2003; Morris, 2005; Schwienhorst, 2004; Smith, 2003a; Toyoda & Harrison, 2002; Tudini, 2003) in a CMC environment. However, only a

small body of previous literature on the interaction effects between NS-NNS and NNS-NNS dyads has also investigated learners' language proficiency.

Gaies (1982) replicated Long's (1981) study and investigated the interactional effects between 10 NS-NNS and 15 NNS-NNS dyads. The results showed that NNSs, with higher language proficiency level than those in Long's study, could converse quite effectively with their NS peers. The author further suggested that NSs' input modifications were offered based on their interlocutors' proficiency, i.e., NSs would adopt more input modifications while interacting with lower-proficient NNSs than higher-proficient NNSs.

Lier and Matsuo (2000) examined the free dyadic interactions between a NNS of English, Yoko, with three other NNSs whose language proficiency was higher than, the same as, and lower than hers. The results showed that the more proficient learners in NNS-NNS dyads would utilize similar interactional resources used by NSs in NS-NNS dyads, but the less proficient would not. In addition, the interactions between two NNSs of similar proficiency level would be similar to those between two NSs.

Polio and Gass (1998) replicated Gass and Varonis' (1994) study, in which they inspected the relationship among input (modified and unmodified groups), interaction (interactive and non-interactive groups), and L2 production by having the learners perform two communicative tasks. The results demonstrated that interaction did facilitate NNSs to better understand their NS peers. They argued that when L2 learners (especially lower-proficient learner) have difficulties controlling their own language production, it would be more difficult for them to notice the gap in their IL or to test their hypotheses, especially when their interlocutors, NSs, are leading most of the interaction.

Fortune (2005) compared the use of metalanguage by advanced NNS of English in a form-focused collaborative writing task with the metalanguage use of intermediate learners in a past study. The results showed that the advanced learners were much more concentrated on form than the intermediate learners. In addition, the advanced learners had a higher chance to reuse a form through the use of metalanguage than the intermediate learners.

In a CMC setting, Schwienhorst (2004) examined whether the synchronous text-based environment can provide more equal and more NS-like patterns of topic negotiations than those reported in previous research in a face-to-face context. Twenty-nine Irish students who were learning German and 22 German students who were learning English were asked to perform four tasks that were available to students in a bilingual format. The results showed that (a) the amount of topic initiations between NS-NNS interaction of both languages was much more balanced than reported by past studies in a face-to-face setting; and (b) more proficient NNSs exhibited features (the use of wh-questions and uninverted questions), which are more prevalent in NS-NS than in NS-NNS conversations.

Lee (2008) explored the feedback negotiations between 15 mixed-proficient NNS-NNS dyads of Spanish learners in three communicative tasks (jigsaw, spot-the-differences, and open-ended questions). The findings showed that CMC facilitated feedback negotiations on both lexical and syntactic items between the higher- and lower-proficient learners. In general, higher-proficient NNSs were capable of offering scaffolding at important times to direct their peers' attention to the nontargetlike forms.

In sum, the findings of the aforementioned studies have demonstrated that NNSs in both NS-NNS and NNS-NNS interactions do provide comprehensible input for their

interlocutors, negotiate for meaning with their peers, and modify their output in both face-to-face and CMC contexts regardless of learners' proficiency levels and dyadic types. Even though previous studies on CMC has shown that learners of different proficiency levels can benefit from interacting with their interlocutors to a certain extent, the results that were found with regard to the interrelationships between learners' proficiency levels and dyadic types are far from conclusive. Therefore, the current research intends to fill this gap by including both NS-NNS and NNS-NNS dyads and learners with different proficiency levels in order to further examine the interactional effects between proficiency and dyadic types.

NOTICING AND LANGUAGE PROFICIENCY: LINGUISTIC ASPECTS

With regard to L2 learners' proficiency levels, studies on both linguistic and sociolinguistic aspects have shown that proficiency does play a role in SLA and noticing (Bardovi-Harlig, 1995; Gass, Svetics, & Lemelin, 2003; Iwashita, 2001; Schmidt, 1990; Williams, 1999, 2001). Bardovi-Harlig (1995) compared the acquisition of tutored and untutored learners with respect to the patterns of acquisition and the potential effects of instruction on the acquisitional patterns. From her longitudinal study, she concluded that (a) learners who were at different developmental stages of their IL but received the same instruction, showed different learning outcomes; and (b) learners who meet the acquisitional prerequisites show positive learning outcome, but for those who are not ready, no apparent learning outcome comes out. Varonis and Gass (1985) inspected communicative oral interactions between NS-NS, NS-NNS, and NNS-NNS dyads. The results showed that NNS-NNS dyads resulted in greater occurrence of the non-understanding routines and negotiation of meaning than both NS-NNS and NS-NS dyads. In terms of the effect of language

proficiency in NNS-NNS dyads, the greater differences in learners' proficiency levels and first languages would result in the larger amount of negotiation in their interactions, suggesting that interactions between NNSs provide them with a "non-threatening forum within which to practice developing language skills and it provides them with an opportunity to receive comprehensible input through negotiation" (p. 87).

In view of the relationship between SLA and incidental noticing, Gass, Svetics, and Lemelin's (2003) study explored the relationship between focused attention and proficiency in three linguistic features (syntax, morphosyntax, and the lexicon) by having learners of three different proficiency levels receive treatment through a computer program. The results indicated that the lowest proficient (first–year) learners improved significantly on all three linguistic foci, the more proficient (second-year) learners improved only on lexicon, and the advanced (third-year) learners improved on none of the three foci. They concluded that focused attention had more significant effects on the less-proficient students than on the most-proficient students in their study. Iwashita (2001) examined the impact of different proficiency levels (low-low, high-high, and high-low groups) on opportunities for modified output in NNS-NNS communication. The results showed that although mixed-proficient dyads resulted in more interaction than same-proficient ones, the difference in the amount of interaction was not significant. Also, lower-proficient learners in the high-low dyads modified their output more than lower-proficient learners in the low-low dyads whereas high proficiency learners modified their output more in the high-high dyads than in the high-low dyads. These findings implicate the effect of interlocutors' proficiency levels on noticing: lower-proficient learners benefit more while interacting with higher-proficient learners than

with low-proficient peers. In contrast, high-proficient learners may not benefit as much from interacting with lower-proficient learners than with learners of similar, or higher, proficiency level.

Williams' (1999) study examined the effect of incidental focus on form on eight NNES ESL learners (4 dyads) at four levels of proficiency in a task-based face-to-face context. The results showed that the degree and type of focus on form was associated with learners' proficiency levels, suggesting that lower-proficient learners may have enough to do just to maintain communication and, therefore, are unable to focus on form as much as the higher-proficient learners. In addition, learners primarily chose to focus on lexical rather than grammatical issues. William's (2001) study explored the occurrence of incidental focus on form and its effect on learners' subsequent production. The results indicated that the more advanced learners generated more LREs and used this information more effectively, i.e. transferring the targeted forms to their long-term memory. The lowest level learners appeared to some extent less ready or able to incorporate the targeted form in the LREs in their subsequent production.

Tekmen and Daloglu (2006) explored the effects of language proficiency (intermediate, upper-intermediate, and advanced) and word frequency (i.e., how often the word occurs in normal use of the language) on NNSs' incidental vocabulary acquisition through reading a text. The results showed that NNSs gained significantly on lexical items through incidental noticing and retained the acquired form at least a week after. In terms of the effect of proficiency levels, advanced NNSs learned significantly more numbers of

words than the intermediate and upper-intermediate NNSs. Finally, the word frequency was positively correlated with learners' retention rate on vocabulary.

NOTICING AND LANGUAGE PROFICIENCY: PRAGMATIC ASPECTS

Studies in IL pragmatics have suggested that proficiency is one of the most important individual variables that may highly affect pragmatic attention and awareness (e.g., Matsumura, 2003; Takahashi, 2005). The majority of IL pragmatic studies have included learners of intermediate proficiency level, and these results are mixed. Takahashi's (2005) study explored Japanese EFL learners' pragmalinguistic awareness in processing six types of L2 implicit input and the extent their awareness of the target features is related to motivation and proficiency. With regard to the relationship with L2 proficiency, the results showed that no significant correlation coefficients were obtained between the learners' pragmalinguistic awareness and their proficiency; in other words, learners with higher L2 proficiency didn't necessarily notice the L2 pragmatic features better.

In the same vein, Bardovi-Harlig and Dornyei's (1998) study found that (a) whereas EFL learners and their teachers consistently identified and ranked grammatical errors as more serious than pragmatic errors, ESL learners and their teachers showed the opposite pattern; and (b) the higher-proficient ESL learners showed greater pragmatic awareness than the lower-proficient ESL learners; and (c) higher pragmatic awareness does not necessarily translate into appropriate pragmatic production, which implies that awareness alone is insufficient for the development of IL pragmatics. Simple exposure to the target language may be insufficient because pragmatic functions and relevant contextual factors are often not salient to learners (Bouton, 1994; Lyster, 1994), and it is very difficult for L2 learners to

notice or even pick up the pragmatic norms by themselves without directing their attention to form. As a result, it is not uncommon to see advanced learners show imbalance between their grammatical and pragmatic competence (Kim, 2000). Proficiency is, therefore, one of the most influential factors to explain the differences between noticing input, acquiring the knowledge base of L2 pragmatic norms, and making dynamic use of L2 pragmatics in various contexts.

Based on the above, the present study also recruited learners of two different proficiency levels (low-intermediate and advanced) with an attempt to examine if proficiency has any significant impact on L2 learners' incidental noticing and their subsequent learning with respect to IL pragmatics.

ASSESSMENT OF LEARNERS' SUBSEQUENT LEARNING

In incidental focus on form, linguistic or sociolinguistic items are focused on briefly within meaning-focused activities (Loewen, 2003a). The unit of analysis in studies of incidental focus on form has been termed as Focus on Form Episode (FFE) by Ellis, Basturkmen, and Loewen (2001a). Swain (2000, 2001) has also suggested that observation of learners' noticing can be accomplished through collaborative dialogue or the language-related episode (LRE). LREs are mini-dialogues, in which learners, either explicitly or implicitly, ask or talk about language or question their own or/and interlocutors' language use (Swain & Lapkin, 1998). Based on this analysis unit, probably the best way to assess the effect of noticing is to retrieve the knowledge of the targeted linguistic or sociolinguistic items from a learner's memory through the use of individual tailor-made posttests derived from the items discussed during LREs (Loewen, 2002, 2005; Shekary & Tahririan, 2006;

Williams, 2001). However, because the testing can be done only after the incidental focus on form has occurred, it is not possible to investigate the learner's prior knowledge of the targeted items. Nevertheless, if an error in production has occurred or a question about an item has been raised, it could be seen as a clear indication of the learner's difficulty with that item in his/her IL system (Ellis et al., 2001b; Swain, 2001). Thus, learning can be operationalized as an increase in the accurate use of the targeted forms in subsequent contexts (Loewen, 2005; Williams, 2001).

In spite of the obscurity of designing tailor-made posttests, several recent studies have explored the relationship between noticing and L2 learning by individually testing the linguistic items that have arisen incidentally during oral interaction in face-to-face (Loewen, 2002, 2005; Williams, 2001) as well as in online chat (Shekary & Tahririan, 2006). Unlike Williams (2001), which was fairly limited in scope, Loewen's (2005) and Shekary and Tahririan's (2006) studies went one step further and were more sophisticated with regard to their evaluation scope and research design. For example, Loewen's (2005) quasi-experimental study examined the effectiveness of incidental focus on form in promoting SLA. A total of 491 FFEs were identified, and two posttests were created based on those identified FFEs. The results revealed that learners were able to recall the targeted linguistic information correctly or partially correctly nearly 60% of the time one day after the FFE, and 50% of the time two weeks later. Furthermore, successful uptake in a FFE was found to be a significant predictor of correct test scores through logistic regression analyses. These results suggest that incidental focus on form might be beneficial to learners, particularly if they incorporate the targeted linguistic items into their own production. Loewen's study

apparently has brought incidental focus-on-form studies to another level because more characteristics related to LREs were put into the measurement. Following Loewen (2005), Shekary and Tahririan (2005) also explored the occurrence of incidental noticing and its effect on learners' subsequent production in a SCMC interface through the identification of LREs and administration of two posttests. The study revealed that the learners did focus on form and that the ratio of LREs far exceeded those reported in previous offline settings. The results of the posttests showed that learners could remember more than 75% of the LREs in the immediate posttest and 56.7% in the delayed posttest. Considering the distribution of the characteristics of the LREs, logistic regression analysis revealed that learners needed to produce successful uptake in order to receive the most benefit from online negotiation of meaning.

The current study partially replicated Loewen (2005) with an attempt to contribute to the growing body of empirical studies on noticing by investigating the negotiation of meaning between learners' of different proficiency levels in both NES-NNES and NNES-NNES dyads with respect to both linguistic and sociolinguistic features.

RESEARCH QUESTIONS

Previous studies in SCMC have suggested that when viewed in the context of interaction theory, the hybrid nature of SCMC makes online negotiation a potentially useful tool for collaborative second language learning (Chun, 1994; Kern, 1995; Shekary & Tahririan, 2006). Besides, under the interactionist framework (Long, 1981, 1991, 1996), it is also important to examine to what extent proficiency may impact the quantity and quality of interaction between learners (Iwashita, 2001). Therefore, the present study investigated the

potential impact that SCMC may have on fostering incidental noticing and its effectiveness on L2 development. In addition, the study also recruited learners of two different proficiency levels (low-intermediate and advanced) in order to examine if proficiency has any significant impact on L2 learners' noticing and their subsequent learning. As a result, the research questions are:

1. Do learners of different proficiency levels in both NES-NNES and NNES-NNES dyads *similarly* notice the gap in their IL during negotiation of meaning in the context of synchronous task-based negotiations?
2. Do learners of different proficiency levels in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations?
3. Does incidental noticing have *similar*, if any, effect on subsequent SLA of learners with different proficiency levels in both NES-NNES dyads and NNES-NNES dyads?
4. Do learners' proficiency levels along with other characteristics of LREs *similarly* predict their L2 learning in a text-based CMC setting in the NES-NNES and NNES-NNES dyads?

METHODOLOGY

This quasi-experimental study focused on the naturally-occurring negotiation of meaning and the occurrence of incidental noticing as well as its effect on SLA between learners of different proficiency levels in two different types of dyads: NES-NNES and NNES-NNES dyads.

Participants

The study involved 60 participants (16 NES-NNES dyads and 14 NNES-NNES dyads) who were all students in their sophomore to senior year of college and were aged from 19 to 23. All participants volunteered to participate in this study in order to partially fulfill course requirements. Sixteen NESs (one male and fifteen females) were all undergraduate pre-service teachers and were taking an ESL methods course from a university in Texas. Out of 156 students majoring in Applied Foreign Language who were from three writing courses in a national university in Taiwan, forty-four NNESs (nine males and thirty-five females) were selected based on their proficiency test scores. Learners' language proficiency which was measured by the intermediate level Reading and Writing portions of General English Proficiency Test (GEPT),[10] with a mean of 48/100 and a SD of 13.2. Given that prior research has shown that learners engage in more negotiation of meaning in mixed-proficient dyads than in same-proficient dyads (Iwashita, 2001; Porter, 1986; Varonis & Gass, 1985), learners of two different proficient levels were selected, in which the 22 lowest scoring students were defined as being at the low-intermediate level whereas the 22 highest scoring students were considered as advanced.[11] At random, eight low-intermediate (Group A) and eight advanced NNESs (Group B) were paired with 16 NESs to form the 16 NES-NNES dyads; another 14 advanced NNESs (Group C) and 14 low-intermediate NNESs (Group D)

[10] GEPT is the most widely accepted English language testing measurement in Taiwan, and most of the universities in Taiwan have been using students' GEPT scores as an indication of students' English proficiency or even a criterion for graduation. There are three levels of the GEPT available, including beginning, intermediate, and advanced levels. The reasons that the current study decided to employ the intermediate level of the GEPT were based on the researcher's observations of the EFL participants' English proficiency, the EFL instructor's recommendation, and level of difficulty of the test.

[11] It should be noted that the low-intermediate and the advanced levels were categorized by the learners' scores of the intermediate level of the GEPT rather than the results of administering different levels of the GEPT on the learners.

were paired to form the 14 mixed-proficiency NNES-NNES dyads. In other words, there were two proficiency levels (low-intermediate and advanced) in both NES-NNES and NNES-NNES dyads. Furthermore, a one-way ANOVA was conducted to verify if there were significant differences between the GEPT test scores across the four groups. As expected, significant differences were only found (p = .00) between any two groups of different proficiency levels, i.e., between Group A and B, A and C, B and D, and C and D.

All of the dyads were asked to engage in online text-based chats through MSN Instant Messenger, free software available on the Microsoft webpage, for around 60 minutes per week in an eight-week span (see Table 10).

TABLE 10
Timeline and Procedures of the Treatment

Timeline	**Procedures**
Week 1	Orientation
Week 2-3	Ice-breaking & rapport building activities
Week 4-6	First task: Jigsaw
Week 7-9	Second task: Decision-making
Week 10	Immediate posttest
Week 13	Delayed posttest

After each chat, each dyad sent their chat-scripts with the timestamps on it to the researcher electronically. All participants and instructors were told that the study aimed to examine online interaction during collaborative tasks, and the participants were encouraged to solve any potential communication problems via the negotiation of meaning.

Treatment

To ensure that all participants were comfortable using computers, the first week was the orientation, in which the participants received detailed information and requirements for

participating in this study. Following the orientation, the next two weeks were used for ice-breaking and rapport-building. Rapport-building between peers is important because it has the potential effect to "enhance learning, motivate learners, and reduce learner anxiety" (Jiang & Ramasy, 2005, p. 47). After knowing each other to a certain degree, each dyad started two communicative tasks that required information exchange and negotiation of meaning. One way of provoking students to realize the gaps in their interlanguage is asking them to negotiate meaning through communicative task-based activities because during this process, students usually notice their linguistic deficiencies, including lexical, grammatical, phonological, semantic, or pragmatic in nature (Blake, 2000). In the present study, the two tasks, including jigsaw and decision-making, were drawn and modified from Chen (2008).[12] With the jigsaw task, the participants possess different pieces of a puzzle needed for a solution and therefore must work collaboratively to converge on a single outcome; with the decision-making task, the participants have equal access to all relevant facts but are not necessarily forced to converge on any common solution (Pica et al., 1993). The first treatment lasted from weeks 4 to 6 (jigsaw task), and the second from weeks 7 to 9 (decision-making task) (see Appendix A & B).

Coding Procedures

The coding procedures included, first of all, the identification of LREs in the learners' chat logs and then the identification of the characteristics of the LREs. Each step is illustrated in detail as follows:

[12] The only modification to Chen's (2008) study was the inclusion of more pictures in the jigsaw task. Since Chen's study only included NES-NNES dyads, a set of Chinese pictures was for the NNESs and another set of western pictures for NESs. However, since the current study included both NES-NNES and NNES-NNES dyads, some pictures of the well-known western figures, such as Martin Luther King and Michael Jackson, were added to the set of western pictures.

TABLE 11
Characteristics of LREs for Learners of Different Proficiency Levels

Characteristics	Definition	Categories
Type	When an LRE is instigated	Reactive: Error correction Preemptive: Learner-initiated query
Linguistic focus	Linguistic target	Grammar/Vocabulary /Spelling/Pragmatics[a]
Source	The reason to instigate an LRE	Code: Inaccurate use of linguistic item with no apparent miscommunication Message: Problem understanding meaning
Complexity	Length	Simple: Only one response move Complex: More than one response move
Directness	Explicitness of the feedback	Indirect: Implicit (e.g., recast, clarification request, or repetition) Direct: Explicit (e.g., metalingual explanation)
Emphasis	Combination of complexity and directness	Light: Indirect and simple Heavy: Direct, complex, or both
Response	Type of feedback provided by the peer	Provision: A participant gives information about a language form by using a recast or an inform (e.g., a definition, an example, an explanation, or signaling the problem). Elicitation: A participant attempts to draw out from NNES a language form or information about a language form (e.g., clarification request, repetition, or prompt).
Timing	When the response occurs	Immediate: The feedback occurs in the turn following the trigger. Deferred: The feedback occurs more than one turn after the trigger occurred
Uptake	NNS response to feedback	Uptake: NNES acknowledges or produces the linguistic information provided in the response. No uptake: NNES produces no response
Successful uptake	Quality of student response	Successful uptake: NNES incorporates linguistic information into production. Unsuccessful uptake: NNES does not incorporate linguistic information into production.
Proficiency[b]	Learner's proficiency level	Low: LRE triggered by learners of low-intermediate proficiency level High: LRE triggered by learners of advanced proficiency level

Modified from Loewen (2005, p. 376).

[a] In the current study, pragmatics-related LREs were also investigated in the coding process since this study involved participants from different cultures and no study has investigated the relationship between incidental noticing of pragmatics and L2 learners' subsequent learning in a SCMC setting.

[b] As noted, proficiency level was added as an additional variable in the characteristics of LREs due to its potential effect on incidental noticing.

1. *Identifying Linguistic-related Episodes* (LREs): LREs are mini-dialogues, in which learners, either explicitly or implicitly, ask or talk about language or question their own or/and interlocutors' language use (Swain, 2000; Swain & Lapkin, 1998). The LREs have been used for assessing noticing and its effect on learners' subsequent SLA (Loewen, 2005; Shekary & Tahririan, 2006; Swain; Williams, 2001). Each LRE consists of three discourse moves: trigger, response, and uptake (optional), and it starts when the conversation is temporarily switched from focus-on-meaning to focus-on-form and ends when either the topic changes back to focus on meaning or a different linguistic form (Loewen, 2005). The following incidents were *not* coded as the occurrences of LREs, including: (1) when a problem was raised during discussion, but the problem was not related to linguistic or sociolinguistic form (i.e. grammar, vocabulary, spelling, or pragmatics); (2) when a linguistic error occurred, but the participants failed to or did not address it for whatever reason; and (3) when learners corrected their errors by themselves.

2. *Identify the Characteristics of the LREs*: All of the LREs identified were then coded into ten potentially influential characteristics for L2 learning, suggested by Loewen (2002, 2004, 2005) (see Table 11).

Given that the impact of learners' proficiency level on incidental noticing was the main focus of the current study, "proficiency" was added as an additional characteristic of LREs in order to explore the relationship between proficiency level and L2 learners' learning outcome. An example of the coding scheme is illustrated in Table 12.

The NNES didn't understand the word *overwhelming* produced by the NES and asked for further explanation. Because the NNES raised a question, the type of the LRE was coded

as *preemptive* (learner-initiated). Meanwhile, because the LRE focused on the word *overwhelming*, the linguistic focus is *vocabulary*. Given that the linguistic item, *overwhelming,* being negotiated was needed in order to keep the conversation going, it is, therefore, a *message*-related LRE. Also, the LRE contains both multiple responses and uptake moves, so it is classified as *complex*. The NES' responses involved explicit explanation, which makes it a *direct* LRE. Complex, direct responses might make LREs much more salient than simple, indirect responses. Since this LRE is both complex and direct, a *heavy* emphasis is assumed. In addition, the NES' responses involved the *provision* of explicit information, and the feedback provided by the NES occurred in more than one turn following the trigger, so the timing of the LRE is *deferred*. Finally, the NNES acknowledged the answer provided by the NES, which is an *uptake* move. Since the NNES failed to incorporate linguistic information provided in the response into production, the uptake is considered *unsuccessful*.

TABLE 12
Example of Coding Scheme for Learners of Different Proficiency Levels

	Characteristics	Episode B48
NES: I hear so many things from different sources and it's ***overwhelming*** sometimes		Category
NNES: *what is* ***overwhelming****?*	Type	Preemptive
NES: I've had professors that talk about global warming and how serious it is, and then I've heard from other professors that it's a hoax made by politicians	Linguistic focus	Vocabulary
	Source	Message
	Complexity	Complex
	Directness	Direct
NNES: really	Emphasis	Heavy
NES: ***overwhelming*** *is ...*	Response	Provision
NES: *when something is a lot to take it, when a situation or something, is hard to deal with*	Timing	Deferred
	Uptake	Uptake
NNES: *out of control?*	Successful uptake	Unsuccessful
NES: *yes kind of like that*		
NNES: *very busy?*		
NES: *similar, but no exactly the same*		
NNES: ***oh***		

Posttests and Test Items

After the LREs were identified, two individualized tailor-made posttests (immediate and delayed) relating to the linguistic and sociolinguistic items targeted in each LRE were created, and the NNSs who were responsible for triggering the specific LREs were tested for those items. Thus, the number of the test questions for each dyad in each posttest varied from one another. These posttests were used as an index of subsequent learning during negotiation of meaning. In order to ensure that the test items of the immediate posttest would not affect the learners' responses to the delayed posttest, it was not appropriate to use the same items triggered in the LREs for both posttests. As a result, for each learner, a half of the total test items were randomly assigned to the immediate posttest items, and another half to the delayed posttest items. With regard to the timing of administering delayed posttests, previous experimental studies on incidental noticing vary greatly; some have no delayed posttests at all (e.g., Branden, 1997; Ellis, Basurkmen, & Loewen, 2001a, 2001b; Lai & Zhao, 2006; Loewen, 2003a,2004; Murphy, 2002; Williams, 1999), and most of them administer their delayed posttests in a certain number of days after the treatment, ranging from one to 14 days (e.g., Loewen, 2002, 2003b, 2005; Loewen & Philp, 2006; Williams, 2001). In order to increase the reliability of the claims made on the long-term effect of incidental noticing on L2 learning, the current study administered the immediate posttest *one* week after the treatment and the delayed posttest *three* weeks after the immediate posttest.

Both posttests were administrated in the learners' regular classroom in written forms. The test items were constructed as closely as possible based on the LREs. In addition, four templates, *Suppliance, Correction, Spelling,* and *Pragmatics*, were developed (see Table 13).

TABLE 13
Sample of Test Types and the Corresponding LREs for Learners of Different Proficiency Levels

Test Type	Test Item	Corresponding LRE
Suppliance	What does the word "***overwhelming***" mean in the following sentence? "Sometimes, it's ***overwhelming*** to hear so many things from different sources."	See the example in Table 3.
Correction	The following sentence is incorrect or inappropriate. Rewrite/correct it: I was very surprised when my sister said, "Thank you for encourage me!" this morning because I thought she was still made at me.	NNES 1: Thank you for ***encourage*** me. NNES 2: No problem. After I had some foreign friends, I now can speak English better. NNES 2: *Miss..it is "Thank you for* ***encouraging*** *me."* NNES 1: *oh, haha*
Spelling	Please choose the correct spelling for the following blank: I like my boyfriend very much because I think he is very_____. (A) hadsome (B) hansome (C) handsome (D) hendsome	NNES 1: I think our new teacher is *hansome.* NNES 2: hansome---->*handsome*, I think you want to spell this word NNES 2: right? NNES 1: yes NNES 1: I didn't notice that NNES 2: hum
Pragmatics	Please rewrite the following inappropriate sentence: A student says to his professor: "Dr. Lee. I cannot hear you. Speak louder."	NNES: *how to say "speak louder" politely?* NNES: can I use " speak louder" to the professor? NES: *yes but i would say "please"* NES *or say could you please speak louder* NNES: ok, I see.

Suppliance. Suppliance (vocabulary) tests were used primarily for LREs related to vocabulary and required learners to provide linguistic information about a word or phrase based on the original contexts in the corresponding LREs.

Correction. In correction (grammar) tests, learners were asked to rewrite or correct the ungrammatical sentences that they had produced in the LREs.

Spelling. In spelling tests, learners were asked to choose the correct spelling of the words that they failed to spell correctly in the LREs.

Pragmatics. In this test, learners were asked to provide the appropriate pragmalingusitc word, phrase, or discourse related to sociolinguistic concepts that they had produced inappropriately or encountered difficulties with during the LREs.[13]

Scoring of Test Items

The scoring criteria were adopted from Loewen (2005). Learners' responses to the test items were scored as (a) *Correct*: if the learner produced a response that correctly matched the targeted linguistic or sociolinguistic item in the LRE; (b) *Partially correct*: if the learner produced a response that improved on the targeted linguistic or sociolinguistic error in some way but was still not totally accurate; and (c) *Incorrect*: if the learner did not correctly produce the linguistic or sociolinguistic item in the LRE.

Data Analysis

All inferential statistics in the current study were performed by using SPSS 15.0. To answer the first research question, descriptive statistics for the occurrence of LREs of all dyads were calculated. After that, two independent two-sample t-tests were performed to test if there were any significant differences in the number of LREs generated by the learners of different proficiency levels *within* the NES-NNES and the NNES-NNES dyads respectively. Another two independent two-sample t-tests was administered *across* the two dyadic types to examine the effect of the *interlocutors'* proficiency levels on in the number of LREs produced by the learners.

[13] In the present study, since the pragmatic test items were completely based on the LREs that each student was responsible for during the negotiation, the baseline data for measuring each L2 learners' interlanguage pragmatics could be assumed to be coming from only one source of input—each EFL learner's respective partner.

To answer the second research question, the distribution of linguistic (grammar, vocabulary, and spelling) and pragmatic-related LREs were calculated for each of the four groups. Examples of pragmatic-related LREs were provided as well.

To answer the third research question, the distribution of tested and untested LREs for each dyad and the descriptive statistics of the learners' test responses were calculated. Pearson's chi-square tests were used *within* each of the groups to reveal if the learners' proficiency levels significantly correlated with their correct test responses. In addition, in order to compare if there were any significant differences between the test responses of the learners' of different proficiency levels, and the immediate, the delayed test, and the combination of both posttests, another three chi-square analyses were implemented *across* the four groups. The significance level for all of the chi-square tests was set at alpha = .05. As suggested by Loewen (2005), adjusted standardized residuals of greater than the magnitude of 2.0 were used to serve as the threshold for identifying if there were any significant differences of the data examined.

To answer the fourth research question, multi-factorial logistic regression analyses were administered on each test type of both NES-NNES and NNES-NNES dyads separately in order to uncover the best model to describe the relationship between the dependent variable (test responses) and independent variables (the 11 characteristics of LREs, including proficiency level).[14] Each independent variable was added to the logistic regression equation one by one, and each step added the variable that would result in the

[14] Since there were not enough sample size for Group C, with a total of 57 LREs for the two posttests (n = 23, 17, 17 and 0 for the correction, suppliance, spelling, and pragmatics accordingly), the logistic regression analyses were not performed on this group.

greatest change to the model. If an independent variable did not make a significant contribution to the model, it was excluded. The procedure selected the most significant variables until there were no more independent variables in the data set (Hosmer & Lemeshow, 2000). Same as Loewen (2005) and Shekary and Tahririan (2006), an alpha level of .15 to .20 was chosen for the stepwise logistic regression in the present study since an alpha level of .05 was considered too rigid (Hosmer & Lemeshow, 2000). Moreover, in order to provide enough samples for logistic regression, the immediate and delayed posttest results were combined.

TABLE 14
Binary Variables of Logistic Regression for Learners of Different Proficiency Levels

Variable	Value=0	Value=1
Test score	Incorrect	Correct
Type	Reactive	Preemptive
Linguistic focus [a]	--	--
Source	Code	Message
Complexity	Simple	Complex
Directness	Direct	Indirect
Emphasis	Light	Heavy
Response	Provision	Elicitation
Timing	Immediate	Deferred
Uptake	No uptake	Uptake
Successful uptake	Unsuccessful uptake	Successful uptake
Proficiency	Low proficiency level	High proficiency level

[a] Not reducible to a binary distinction

Because logistic regression analysis is only feasible for binary dependent variables, this study combined *partially correct* and *correct* test responses because both categories reflected learning in some degree. By doing this, the originally trichotomous coding categories for the test responses (correct, partially correct, and incorrect) become binary categories. As for the independent variables, even though logistic regression analysis does allow for polychotomous independent variables, the interpretation of exponentiation of the

Beta—exp (B)—is problematic for more than two categories (Loewen, 2002, 2005; Shekary & Tahririan, 2006). Exp (B) is the parameter of interest in logistic regression analysis because it estimates how much more likely it is for an outcome to occur among variables with value (1) than those with value (0). For example, if the dependent variable (test response) is coded as 0 = incorrect and 1 = correct, and independent variable of complexity (coded as 0 = simple and 1 = complex) has exp (B) of 3, then the correct response is three times more likely to occur in complex LREs than in simple LREs in the data set (Loewen, 2005). Thus, for the sake of the interpretation of the results, the independent variables were also made as binary in the current study (see Table 14). Loewen's (2005) and Shekary & Tahririan's (2006) studies were chosen for comparison because no other study has used binary logistic regression to identify which characteristics of LREs could best predict learners' learning outcome.

Reliability of Coding

The researcher of the present study coded all of the LREs first. To estimate the reliability of the coding of the LREs, a colleague, who was trained by the researcher, coded 50% of the LREs and the NNESs' test responses on both posttests. Then, the kappa coefficients for both LREs and posttests coding were calculated (k = .95). In order to ensure the construct reliability of the test items, two trained EFL instructors reviewed all test items based on the related LREs. When any disagreement occurred, both of them negotiated to reach an agreement on the problematic LREs. As a result, they jointly agreed with 96% of the total test items.

RESULTS AND DISCUSSION

Research Question One

The first research question is intended to discover the occurrence of the learners' noticing in a SCMC setting, i.e., to examine if learners of different proficiency levels in both NES-NNES and NNES-NNES dyads similarly notice the gap in their interlanguage during negotiation of meaning in the context of synchronous task-based negotiations.

The effect of learners' proficiency level on noticing. As shown in Table 15, the 30 dyads (four groups) produced 828 LREs in total (mean = 27.6, SD = 10.92). Among them, Group A produced a total of 254 LREs (mean = 31.75, SD = 10.57), Group B 231 LREs (mean = 28.88, SD = 14.07), Group C 76 LREs (mean = 5.43, SD = 4.48), and Group D 267 LREs (mean = 19.07, SD = 8.69) during the treatment period.

In order to examine the effect of the *learners'* proficiency levels on the number of LREs produced, two independent two-sample t-tests were performed to test if there were significant differences in the number of LREs generated by the learners of different proficiency levels within the NES-NNES and the NNES-NNES dyads respectively. The result showed that there were no significant differences between the low-intermediate and advanced learners in the NES-NNES dyads ($n = 16$, $p = .311$, $\alpha = .05$); however, significant differences were found between the low- intermediate and advanced learners in the NNES-NNES dyads ($n = 14$, $p = .00$, $\alpha = .05$).

For the NES-NNES dyads, the results indicated that the learners of different proficiency levels similarly noticed the gaps in their IL, but the low-intermediate NNESs had slightly more LREs than the advanced NNSs while interacting with NESs. These results

resonate with those reported in Gaies (1982), in which NSs would utilize more input modifications while interacting with lower-proficient NNSs than higher-proficient NNSs.

TABLE 15
Total LREs of Learners with Different Proficiency Levels and Dyadic Types

Dyadic Type	Proficiency	Dyads #	LRE#	Proficiency	Dyads #	LRE#
NES-NNES Dyads	Low-intermediate (Group A)	Dyad 1	35	Advanced (Group B)	Dyad 9	13
		Dyad 2	30		Dyad 10	28
		Dyad 3	32		Dyad 11	49
		Dyad 4	48		Dyad 12	44
		Dyad 5	38		Dyad 13	32
		Dyad 6	16		Dyad 14	11
		Dyad 7	18		Dyad 15	18
		Dyad 8	37		Dyad 16	36
		Total	254		Total	231
Dyadic Type	Proficiency	Dyads #	LRE#	Proficiency	Dyads #	LRE#
NNES-NNES Dyads	Advanced (Group C)	Dyad 17	11	Low-intermediate (Group D)	Dyad 17	26
		Dyad 18	9		Dyad 18	11
		Dyad 19	5		Dyad 19	24
		Dyad 20	0		Dyad 20	39
		Dyad 21	2		Dyad 21	15
		Dyad 22	8		Dyad 22	5
		Dyad 23	0		Dyad 23	11
		Dyad 24	0		Dyad 24	26
		Dyad 25	3		Dyad 25	21
		Dyad 26	10		Dyad 26	15
		Dyad 27	1		Dyad 27	21
		Dyad 28	5		Dyad 28	10
		Dyad 29	10		Dyad 29	22
		Dyad 30	12		Dyad 30	21
		Total	76		Total	267

For the NNES-NNES dyads, the results showed that the low-intermediate learners demonstrated significantly more instances of noticing the gaps in their IL than did their advanced-proficient counterparts. This suggests that the effect of proficiency levels do come

into play when it comes to the NNES-NNES dyads. Similar results were found in Iwashita's (2001) study, in which (1) lower-proficient learners modified their output (noticed the gaps in their IL) more while interacting with higher-proficient learners than with low-proficient peers; and (2) high-proficient learners did not modified their output as much when interacting with lower-proficient learners than with learners of similar, or higher, proficiency level.

However, according to Lier and Matsuo (2000), more proficient learners may benefit greatly from conversing with less proficient peers because they will practice a range of conversational skills which are quite similar to those used by NSs in similar situations. If that is the case, it can be speculated that the advanced learners in the NNES-NNES dyads would also benefit considerably from interacting with their low-intermediate peers.

The effect of interlocutors' proficiency level on noticing. In order to examine the effect of the *interlocutors'* proficiency levels on the number of LREs produced by the learners, another two independent two-sample t-tests was administrated to examine if there were any significant differences in the number of LREs between the two low-intermediate groups (A and D) and between the two advanced groups (B and C).

The results showed that there were statistically significant differences between the two low-intermediate groups ($p = .013$, $\alpha = .05$). When the low-intermediate learners were interacting with the NESs, they generated significantly more LREs than with advanced NNESs. Likewise, significant differences were also found between the two advanced groups ($p = .00$, $\alpha = .05$), i.e. while the advanced students were interacting with NESs, they generated significantly more LREs than with the low-intermediate NNESs. In other words,

both low-intermediate and advanced learners produced significantly more LREs while interacting with the NESs than with the different-proficient NNESs. This finding resonates with William's (2001) study, in which she found that lower-proficiency learners tended to pay more attention and better retained the information provided by their NS teachers, but not provided by their NNS peers. She concluded that NSs play an important role in providing negative and positive linguistic evidence and in calling the learner's attention to it.

Therefore, in order to better promote L2 learners' incidental noticing, it is important to include NESs in the two-way communication in the CMC setting. Although existing literature has endorsed the positive effects of NNS-NNS interactions (Porter 1983, Smith, 2003a, 2004), research on NS-NNS interactions has found that NSs' responses to NNSs' nontargetlike utterances usually involve more elaboration, more repetition, slower speech rate, more questions, more linguistic correction, more explicit and implicit feedback, simplified lexical items, less complex sentence structures, and more tolerance for abrupt topic shifts (Long, 1983, 1996, Long & Porter, 1985; McGroarty, 1990; Rulon & McCreary, 1986; Varonis & Gass, 1985). Gass & Varonis' (1994) study, for example, found that both modified input and negotiation in NS-NNS interactions would result in NNSs' greater understanding of the engaged conversation as well as their immediate task performance when compared with NNS-NNS interactions. Additionally, compared to NNSs, NSs may have a natural advantage in terms of their procedural knowledge (the ability to do things) about how to use the target language and how to behave appropriately in the target culture (Pasternak & Bailey, 2004). Taken together, the effect of the *interlocutors'* proficiency

levels on the number of LREs produced by the learners has evidenced to be significant in the current research.

In sum, the findings for the first research question indicated that the task-based language learning framework promoted learners' noticing of their linguistic and sociolinguistic problems in general, given that each group generated certain amount of LREs. However, because the learners of different proficiency levels in both NES-NNES and NNES-NNES dyads didn't *similarly* notice the gap in their interlanguage during negotiation of meaning in the context of SCMC, the answer to the first research question is negative. This finding supports Loewen's (2003a) finding in a face-to-face setting, in which the number of FFEs per student differed greatly from 0 to 61.

Research Question Two

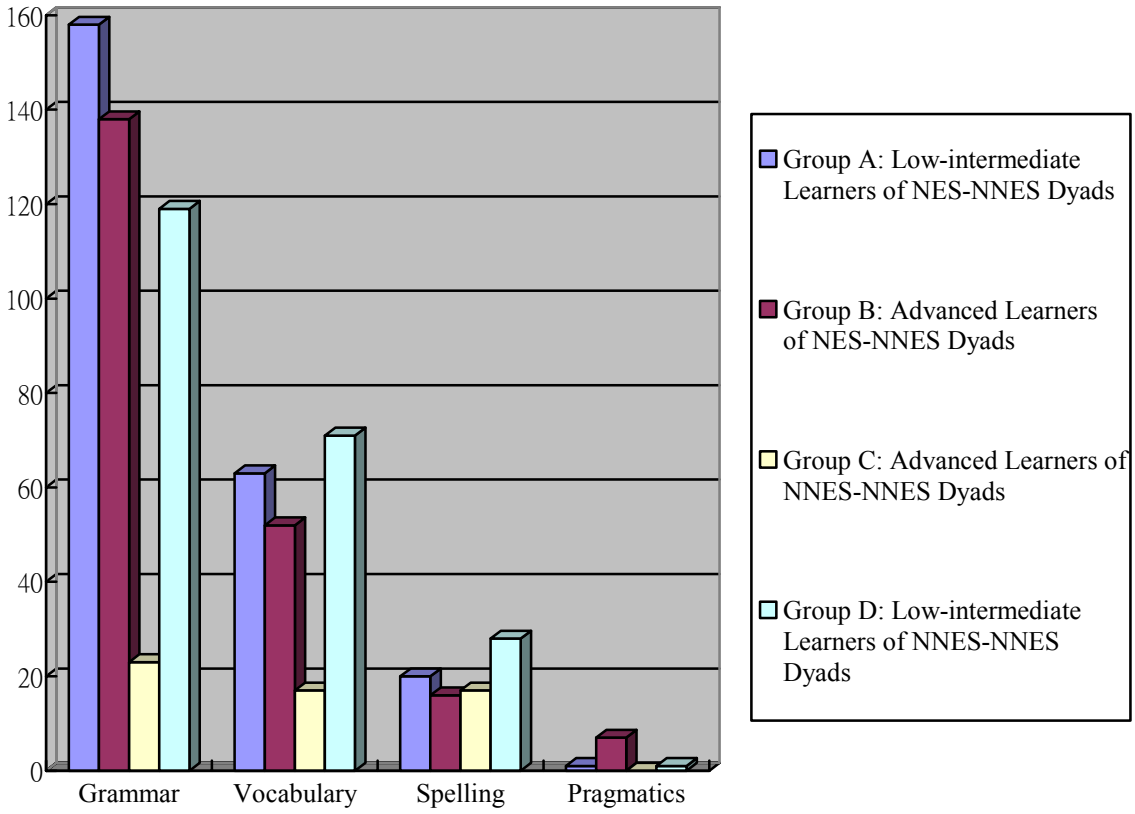
The second research is intended to find out if learners of different proficiency levels in both NES-NNES and NNES-NNES dyads *similarly* notice linguistic and pragmatic aspects of language during negotiation of meaning in the context of synchronous task-based negotiations.

When dividing the data set in accordance with the four targeted linguistic and sociolinguistic features (grammar, vocabulary, spelling, and pragmatics) in the current study, the distribution of the four investigated features were similar among the four groups (see Figure 4). This result indicates that proficiency level did not appear to affect the distribution of the type of (socio)linguistic foci that the learners focused on during the LREs.

According to Schmidt's noticing hypothesis (1990), linguistic forms can serve as intake for language learning only if they are noticed by learners, and noticing is a necessary

condition for L2 acquisition; this requirement of noticing is meant to apply equally to all aspects of language (lexicon, phonology, grammatical form, and pragmatics). However, with respect to the pragmatic-related LREs, only 1.9% (1 out of 254) of the total LREs were pragmatic-related in Group A, 3% (7 out of 231) in Group B, 0% (0 out of 76) in Group C, and .4% (1 out of 267) in Group D, i.e. the learners of both dyads overwhelmingly focused on the lexical and grammatical issues during the negotiated meaning rather than the pragmatic aspects of language. Therefore, the answer to the second research question is negative.

FIGURE 4
Quantities of Grammar-, Vocabulary-, Spelling-, and Pragmatics-related LREs Generated by the Four Groups



This finding is consistent with Bardovi-Harlig and Dornyei's (1998) experimental study, in which EFL learners and their teachers consistently identified and ranked grammatical errors as more serious than pragmatic errors, and ESL learners and their teachers showed the opposite pattern. This finding supports the notion that teaching pragmatic knowledge tends be neglected in EFL contexts at the expense of overly emphasizing grammatical accuracy.

FIGURE 5
Examples of Pragmatics-related LREs between Learners of Different Proficiency Levels

Example 1 (politeness): NNES-NNES
Low-intermediate NNES : *Can I borrow your book tomorrow?*
Advanced NNES: *If you want to make some request*[s]. It's more polite, if you use could instead of can
Advanced NNES 1: *hum~*
Advanced NNES 1: *I see.*

Example 2 (distance): NES vs. low-intermediate NNES
NNES: *should I say hello or hey to my classmate*
NES: *say hey*
NES: *because its a peer*
NES: *someone your age*
NNES: *hmm?*

Example 3 (formality): NES vs. advanced NNES
NNES: *I'll be really thankful for your help.*
NES: *I would probably say something in terms of "Thank you soooo much!"*
NES: *more casual conversation*
NNES: *m*
NES: does that help?
NES: a little?
NNES: YES!! A LOT.

Example 4 (directness): NES vs. advanced NNES
NNES: *now I do really need some help because I am now planning the annual dance party*
NES: *start the sentence with what you want to say not now*
NES: *example:*
NES: *I really need some help.*
NES: *or "I am planning the annual dance party"*
NES: *not I am now planning the annual dance party.*
NNES: *aww, say it directly!*
NES: *yes*

Examining the targeted pragmatic features negotiated in those eight LREs in the NES-NNES dyads showed that various issues related to pragmatics were addressed, including four LREs on *politeness*, two on *formality*, one on *distance*, one on *directness*; the only pragmatic LRE in the NNES-NNES dyads was about *politeness*. A few examples are shown in Figure 5.

Since the number of the pragmatic-related LREs across the four groups is fairly small, it is too arbitrary to make any claim on the effect of proficiency on pragmatic noticing. However, given the fact that the NES-NNES dyads produced more pragmatic-related LREs than the NNES-NNES dyads (8 vs. 1) implicates that the NESs may be more sensitive to their interlocutors' pragmatic performance than the learners in the NNES-NNES dyads. It also indicates the importance of offering NNSs legitimate access to NSs because most of the EFL classrooms are test-driven and tend to emphasize micro-level grammatical competence at the expense of macro-level pragmatic appropriateness (Bardovi-Harlig & Dornyei, 1998). EFL learners have limited access to communicative opportunities with NSs and usually lack pragmatic awareness.

In a SCMC environment, Tudini (2003) examined the negotiation of meaning and modification of output raised from the interaction between NNSs-NSs of Italian in a NS chat room. The results showed that an online chat room could potentially facilitate SLA, and conversing with NSs in a chat room would provide NNSs "an authentic and purposeful cross-cultural experience" (p. 157).

Some research on IL pragmatics and proficiency has found that proficiency is not correlated with learners' pragmatic awareness (Takahashi, 2005). However, given that seven

out of the total eight pragmatic LREs in the NES-NNES dyads were generated by the advanced learners, this may implicate that more proficient learners may have higher pragmatic awareness. This assumption aligns with Bardovi-Harlig and Dornyei's (1998) finding, in which ESL learners with higher proficiency were found to have higher pragmatic awareness.

Finally, the small number of pragmatic-related LREs in the current study implicates that simple exposure to the target language is insufficient because pragmatic functions and relevant contextual factors are often not salient to learners, and it is very difficult for L2 learners to notice or even pick up the pragmatic norms by themselves without directing their attention to form (Matsumura, 2003; Takahashi, 2005). As Schmidt (1993) argues, attention to "linguistic forms, functional meanings, and the relevant contextual features" is necessary for pragmatic learning to occur" (p. 35). On the other hand, Tudini's (2007) study on NS-NNS interaction in a chat room has evidenced that learners did notice some limited pragmatic features incidentally while engaging in online meaning negotiation, which echoes LoCastro's (2003) contention that "It is through target language interactions that the learner acquires comprehensible input, not only grammatical and lexical, but also input on how to enact speech acts, carry out redressive action, and show deference successfully for the L2 target community" (p. 292). Therefore, in order to induce more pragmatic noticing in both NS-NNS and NNS-NNS interactions, it may be essential to have learners engage in communicative tasks that are more conducive to negotiation of meaning on pragmatic aspects of language.

Research Question Three

The third research question is intended to find out whether learners of different proficiency levels could *similarly* grasp and retain the forms they noticed during the online negotiation of meaning, i.e. to explore if incidental noticing have *similar* effect on subsequent SLA of learners with different proficiency levels in both NES-NNES dyads and NNES-NNES dyads.

TABLE 16
Tested Language-Related Episodes of NES-NNES Dyads

Low-intermediate Learners of NES-NNES Dyads (Group A)	Immediate Test LREs	Delayed Test LREs	Total Tested LREs	Total untested LREs	Total LREs	Percent Tested
1	17	17	34	1	35	
2	14	14	28	2	30	
3	16	16	32	0	32	
4	24	24	48	0	48	
5	18	17	35	3	38	
6	8	7	15	1	16	
7	9	8	17	1	18	
8	16	17	33	4	37	
Total	122	120	242	12	254	
Advanced Learners of NES-NNES Dyads (Group B)	Immediate Test LREs	Delayed Test LREs	Total Tested LREs	Total untested LREs	Total LREs	Percent Tested
9	7	6	13	0	13	
10	13	13	26	2	28	
11	21	21	42	7	49	
12	19	19	38	6	44	
13	15	14	29	3	32	
14	6	5	11	0	11	
15	9	9	18	0	18	
16	18	18	36	0	36	
Total	108	105	213	18	231	
Grand Total	230	225	455	30	485	

The distribution of the tested and untested LREs. The distribution of the tested and untested LREs for the NES-NNES dyads is shown in Table 16 and for the NNES-NNES dyads in Table 17.

TABLE 17
Tested Language-Related Episodes of NNES-NNES Dyads

Advanced Learners Learners of NNES-NNES Dyads (Group C)	Immediate Test LREs	Delayed Test LREs	Total Tested LREs	Total untested LREs[a]	Total LREs	Percent Tested
17	5	4	9	--	11	
18	4	3	7	--	9	
19	3	2	5	--	5	
20	0	0	0	--	0	
21	1	1	2	--	2	
22	3	3	6	--	8	
23	0	0	0	--	0	
24	0	0	0	--	0	
25	1	1	2	--	3	
26	4	4	8	--	10	
27	1	0	1	--	1	
28	2	2	4	--	5	
29	4	3	7	--	10	
30	3	3	6	--	12	
Total	31	26	57	--	76	
Low-intermediate of NNES-NNES Dyads (Group D)	Immediate Test LREs	Delayed Test LREs	Total Tested LREs	Total untested LREs	Total LREs	Percent Tested
17	9	9	18	--	26	
18	4	4	8	--	11	
19	11	11	22	--	24	
20	17	17	34	--	39	
21	6	5	11	--	15	
22	3	2	5	--	5	
23	5	4	9	--	11	
24	13	12	25	--	26	
25	10	10	20	--	21	
26	7	6	13	--	15	
27	10	10	20	--	21	
28	4	4	8	--	10	
29	7	7	14	--	22	
30	6	6	12	--	21	
Total	112	107	219	--	267	
Grand Total	143	133	276	--	343	

[a] The total number of the untested LREs of the 14 NNES-NNES dyads was 67 (19.5%). However, since the majority of the untested LREs in the present study resulted from each dyad's inability to reach a conclusion or agreement with regard to the targeted linguistic or sociolinguistic forms, it is literally not possible to identify which learner in the NNES-NNES dyads should be held accountable for those unresolved LREs.

Thirty out of the total of 485 NES-NNES LREs (6.2%) and 67 out of the total 343 NNES-NNES LREs (19.5%) were untested because either the participants failed to or did

not solve the problem raised in the LREs or the raters failed to reach an agreement on the appropriateness of the test items. When examining each of the four groups (A, B, C, and D) separately, the distributions of the tested LREs were 242, 213, 57, and 219 for each of these four groups respectively. Similar to the distributions of the total LREs across the four groups reported earlier in Table 15, the discrepancies of the tested LREs between Group C and the other three groups were also notable.

The test responses of the learners of different proficiency levels. The descriptive statistics of the learners' test responses are displayed in Table 18.

TABLE 18
Test Responses of Learners of Different Proficiency Levels

Dyadic Types	Test Responses	Immediate		Delayed		Total	
		N	%	N	%	N	%
Low-intermediate Learners of NES-NNES Dyads (Group A)	Correct	72	59	69	57.5	141	58.3
	Partially Correct	14	1.5	8	6.7	22	9.1
	Incorrect	36	29.5	43	35.8	79	32.6
	Total	122		120		242	
Advanced Learners of NES-NNES Dyads (Group B)	Correct	61	56.5	57	54.3	118	55.4
	Partially Correct	11	10.2	8	7.6	19	8.9
	Incorrect	36	33.3	40	38.1	76	35.7
	Total	108		105		213	
Advanced Learners of NNES-NNES Dyads (Group C)	Correct	23	74.2	20	76.9	43	75.4
	Partially Correct	1	3.2	0	0	1	1.8
	Incorrect	7	22.6	6	23.1	13	22.8
	Total	31		26		57	
Low-intermediate Learners of NNES-NNES Dyads (Group D)	Correct	65	58.0	68	63.6	133	60.7
	Partially Correct	6	5.4	5	4.7	11	5.0
	Incorrect	41	36.6	34	31.8	75	34.3
	Total	112		107		219	
Total	Correct	221	59.2	214	59.8	435	59.5
	Partially Correct	32	8.5	21	5.8	53	7.3
	Incorrect	120	32.1	123	34.4	243	33.2
	Total	373		358		731	

Combining the four groups, the learners generated 59.5% of the test responses correctly, 7.3% of the test responses partially correctly, and 33.2% of the test responses incorrectly.

Within the NES-NNES dyads, the advanced learners (Group A) correctly recalled and reproduced 59% of the test items in the immediate posttest and 57.5% in the delayed posttest whereas the low-intermediate learners (Group B) correctly responded to 56.7 % of the test items in the immediate posttest and 54.3 % in the delayed posttest. The percentage differences of partially correct responses of the advanced learners between the two posttests (1.5% vs. 6.7 %) were slightly larger than those of the low-intermediate learners (10.2% vs. 7.6%). Finally, the incorrect answer rates were 29.5% in the immediate and 35.8% in the delayed tests for the advanced learners while 33.3% and 38.1% for the low-intermediate learners respectively.

Within the NNES-NNES dyads, the advanced learners (Group C) correctly recalled and reproduced 74.2% of the test items in the immediate posttest and 76.9% in the delayed posttest whereas the low-intermediate learners (Group D) correctly responded to 58% of the test items in the immediate posttest and 63.6% in the delayed posttest. The percentages of partially correct responses of the advanced learners of the two posttests were 3.2% and 0% whereas they were 5.4% and 4.7% for the low-intermediate learners. Finally, the incorrect answer rates were 22.6% in the immediate and 23.1% in the delayed tests for the advanced learners while 32.1% and 34.4% for the low-intermediate learners respectively. This result aligns with the finding in Williams' (2001) study on NNS-NNS dyadic interaction, in which more proficient learners were more likely to transfer the targeted forms during LREs into long-term memory than less proficient learners. Nevertheless, the fact that the learners of both proficiency levels in NNES-NNES dyads performed better in the delayed posttest (63.6% for low-intermediate and 76.9% for the advanced) than the immediate posttest (58%

for low-intermediate and 74.2% for the advanced) may appear to be counterintuitive. One possible explanation may be that during the three weeks' period of time between the immediate and delayed posttests, learners might have incidentally paid more attention to and "re-noticed" the forms that had been negotiated in the LREs.

According to Takahashi (2005), learners' higher awareness of the target forms is positively correlated with the appearance of those forms during their subsequent performance. Since the learners in the current study had noticed those targeted forms at least once in their LREs, it would be more likely for them to acquire those forms when their attention was drawn to the same forms again. Crookes and Rulon (1988) also suggested that if learners were to be exposed to or use the same linguistic forms over and over again, they would potentially have more possibilities to retain the negotiated linguistic elements.

The descriptive statistics reported above showed that the differences in the test performance between the learners of different proficiency levels within the NES-NNES dyads seem negligible when compared to the NNES-NNES dyads. In addition, our results are somewhat close to those reported in Shekary and Tahririan (2006) (70.3% in immediate posttest and 56.7% in the delayed posttest) in SCMC. However, the results of the learners' test performance are higher than those in Loewen (2005) (47.6% in immediate posttest and 39.3% in the delayed posttest) in a face-to-face setting which may be attributed to the two unique features of CMC: visual information (Murphy, 2002) and more processing time for reading and typing messages (Smith, 2003a), which help the comprehension process and the acquisition of linguistic items. The contextual factor of medium is influential (Ellis, 2001), which helps to explain the discrepancy of learners' test performance between Loewen's

(2005) and the current study.

While these scores may not seem particularly high, it should be remembered that the targeted linguistic items were addressed incidentally in collaborative dialogues that were not specifically designed to address these items (Loewen, 2003a). In short, the results of the learners' test performance in the present study show that incidental noticing is effective for subsequent SLA in both NES-NNES and NNES-NNES task-based interactions through SCMC.

The effect of proficiency on correct test responses. In order to examine if the learners' proficiency levels significantly were correlated with their correct test responses on both posttests, chi-square analyses were performed both *within* and *across* these four groups.

First of all, four Pearson's chi-square analyses ($\alpha = .05$) were used *within* each of the four groups separately.[15] The results showed that there were no significant differences in the distribution of correct test responses between the immediate and delayed tests for each of these four groups, with $X^2(2, n = 242) = .316$, $p > .05$ for Group A, $X^2(2, n = 213) = .678$, $p > .05$ for Group B, $X^2(2, n = 57) = .652$, $p > .05$ for Group C, and $X^2(2, n = 219) = .705$, $p > .05$ for Group D. The residuals showed that the differences between incorrect, partially correct, and correct responses for these four groups were all quite small, ranging from the magnitude of .4 to 1.4.

[15] In order to explore the possible relationship between the two posttest results, in addition to the chi-square analyses, the researcher also transformed the categorical data into numerical data by assigning two points to correct responses, one point to partially correct responses, and no point to incorrect responses. After calculating the percentage of each participant's scores (divided by his/her maximum possible scores) in the immediate and the delayed tests, four paired t-test analyses ($\alpha = .05$) were performed. The results showed that there were no significant differences between the learners' performance in these two posttests, with $p = .572$, .641, .682, and .784 for Group A, B, C, and D respectively.

In order to vertically compare if there were any significant differences between the correct, partially correct, and incorrect test responses across the four groups in the immediate test, the delayed test, and the combination of both posttests, another three chi-square analyses were implemented *across* the four groups respectively. The chi-square statistics were $X^2(6, n = 373) = .309$, $p > .05$ for the immediate posttest, and $X^2(6, n = 358) = .390$, $p > .05$ for the delayed posttest, and $X^2(6, n = 731) = .348$, $p > .05$ for the combination of both posttests, which indicated that there were no significant differences existing in any test response categories between these two types of dyads. The residuals showed that the differences between the correct test responses of the two types of dyads in the immediate test, delayed test, and the combination of both posttests were smaller than plus or minus 2, ranging from the magnitude of .1 to 1.8.

Based on the results of the chi-square analyses in the current study, the answer to the third research question is yes because the learners of different proficiency levels in both dyadic types could similarly retain the linguistic and sociolinguistic forms they had negotiated in the LREs over the three-week period between the immediate and the delayed posttest. The results of William's (2001) study also indicated that in most cases, attention to form in the LRE was related to accurate performance on the test. Compared with Loewen (2005) and Shekary and Tahririan (2006), our results are promising because the learners performance decreased significantly from the immediate to the delayed posttests in those two studies. Even though VanPatten's (1990) study found that it was difficult for both beginning and intermediate L2 learners to consciously pay attention to content and form at the same time during interactions, the unique feature of CMC would allow more time for the

(lower-proficient) learners to process input into intake more efficiently (Beauvois, 1992; Smith, 2003a).

In sum, the learners' consistent performance in the posttests was not so much determined by their language proficiency levels, nor by the native status of their interlocutors'. In other words, the occurrence of incidental noticing in a task-and text-based SCMC setting does assist the subsequent L2 learning of learners of different proficiency levels at a similar rate.

Even though NSs are considered by some researchers as ideal language models and are more capable of producing comprehensible input than NNSs, and learners may get more motivated by interacting with them (Kitade, 2005; Kung, 2002; Long, 1983; Pasternak & Bailey, 2004), the result of this study showed that the learners interacting with NESs did not significantly perform better on the posttests than learners interacting with NNESs. This result can be contributed to the interrelationships between linguistic and affective factors, i.e., language proficiency (Lee, 2008; Lier & Matsuo, 2000; Smith, 2004) and anxiety (Arnold, 2007; Lee, 2004; Liu, 2006).

With respect to the factor of language proficiency, it can be argued that the advanced learners of the NNES dyads could, to some extent, function as the NESs in the NES-NNES dyads and provide scaffolding for the less proficient learners since (1) NNSs can serve as "experts, coaches, or more competent peers" during their CMC interaction, and they can and do learn from one another (Smith, 2004, p. 388); and (2) more proficient learners in NNS-NNS dyads would use interactional resources similar to those used by NSs in NS-NNS dyads, but less proficient learners would not (Lier & Matsuo, 2000). Lee (2008) studied the

communicative interactions between NNS-NNS dyads in an online setting and suggested that the more proficient learners of Spanish acted as both teachers and peers while interacting with their less proficient interlocutors during the feedback negotiation process, and higher-proficient learners could offer scaffolding at important moments to direct learners' attention to the nontargetlike forms. Also, Shehadeh (1999) studied the modified output between NS-NNS and NNS-NNS interactions and concluded that when the NNSs in the NNS-NNS dyads have to cope with the pressure of producing comprehensible output for their peers, they extend and utilize their IL capacity to the limit. In most cases, attention to form in the LREs was related to accurate performance on the test (Williams, 2001). Similar results were found in Pellettieri (1999), in which she found that intermediate learners of Spanish were still able to generate native-like forms and engage in self-repairing through online negotiation.

As far as affective factors are considered, research has investigated the relationship between L2 learners' anxiety and their language proficiency in both face-to-face classroom (Liu, 2006) and CMC settings (Lee, 2004). Liu (2006) study, as an example, found that a considerable number of Chinese EFL learners of all three different proficiency levels felt anxious when speaking English in class, but the more proficient learners tended to be less anxious. Even though previous studies have claimed that CMC can lower L2 learners' anxiety levels when compared to face-to-face contexts (Kern, 1995; Warschauer, 1996), Arnold (2007) found that there was no difference in the anxiety levels of learners' group discussions between the CMC and face-to-face settings. In addition, Lee (2004) reported that in NS-NNS interactions, some NNSs' self-confidence was negatively influenced by

their lower language proficiency. Also, some NNSs were frightened because they regarded their NS peer as an authoritative figure in language. Therefore, it is reasonable to assume that the less proficient learners in the NES-NNES dyads of the current study may experience a greater degree of anxiety than the more proficient learners in the same type of dyads. As has been discussed, both proficiency and anxiety factors may help to explain why the NES-NNES dyads did not perform significantly better than the NNES-NNES dyads on the posttests.

Research Question Four

The fourth research question entails the use of multiple logistic regression analyses to uncover the best model to describe a relationship between the dependent variable (test responses) and independent variables (language proficiency and the other 10 characteristics of LREs) for the two dyadic types, i.e. to investigate if learners' proficiency levels along with other characteristics of LREs similarly predict their L2 learning in a text-based CMC setting in NES-NNES dyads and NNES-NNES dyads. In order to provide enough samples for logistic regression analyses, the immediate and delayed posttest results were combined. The results of the logistic regression analyses are presented in Table 19.

The Results of the logistic regression analyses for NES-NNES dyads. For the NES-NNES dyads, the predictors that entered into the regression model of the grammar test were type, source, and successful uptake. Among the three variables, source was the strongest one, which had an exp (B) of 4.807, meaning that correct responses were almost five times more likely when the tested LREs were code-related instead of message-related.

TABLE 19
Results of Logistic Regression Analyses and Test Types

Dyad Type	Test type	Predictor variables	95% Confidence Intervals		Exp (B)	P-value
			Lower	Upper		
NES-NNES Dyads	Grammar	Type	1.126	9.902	3.200	0.029
		Source	0.095	0.405	0.208 (4.807)*	0.000
		Successful uptake	1.384	4.145	2.395	0.002
	vocabulary	Source	0.008	0.373	0.154 (6.493)*	0.003
		Complexity	1.471	15.217	4.730	0.009
		Proficiency	0.179	1.076	0.439 (2.278)	0.072
		Successful uptake	1.044	16.223	4.115	0.043
	Spelling	Proficiency	0.060	1.444	0.294 (3.401)*	0.132
	Pragmatics [a]	--	--	--	--	--
NNES-NNES Dyads	Grammar	Timing	0.086	1.264	0.330 (3.030)*	0.106
		Successful Uptake	0.031	3.826	2.001	0.041
	vocabulary	Timing	0.043	0.858	0.191 (5.236)	0.031
		Successful uptake	1.499	21.467	5.672*	0.011
	Spelling	Proficiency	0.936	79.279	8.615*	0.057
	Pragmatics [a]	--	--	--	--	--

[a.] The sample sizes for the pragmatics test (n = 8 for the NES-NNES dyads and n = 1 for the NNES-NNES dyads) are too small to perform logistic analyses.

Note 1: The predictor variables with an exp (B) of less than 1 were also calculated into their reciprocal values (when y = 0). These numbers are presented in parentheses.

Note 2: The predictor variables with the highest exp (B) in each model are marked with an asterisk (*).

In addition, type was the second strongest variable, which had an exp (B) of 3.200, indicating that preemptive (learner-initiated) LREs were more than three times more likely to result in correct test responses than reactive LREs (corrective feedback). Furthermore, LREs with successful uptake were almost two and a half times more likely to result in correct test responses than unsuccessful uptake.

For the vocabulary test, the significant variables were proficiency, source, complexity, and successful uptake. Again, source appeared to be the strongest one among these three

variables, which had an exp (B) of 6.493. This indicates that code-related LREs were almost six and a half times more likely to result in correct test responses than message-related LREs. The second strongest variable in the suppliance test was complexity, with an exp (B) of 4.73, indicating that complex LREs were almost five times more likely to result in correct test responses than simple ones. The next strongest variable in the suppliance test was successful uptake, with an exp (B) of 4.115, which means that when learners generated successful uptake in a LRE, the chances that they answered the corresponding vocabulary test item correctly were around four times more than unsuccessful uptake. Even though proficiency was the least strong variable in the suppliance test, the low-intermediate learners were more than two times more likely to answer the vocabulary-related questions correctly than the advanced learners.

The spelling test resulted in only one significant variable: proficiency, with an exp (B) of 3.401, meaning the low-intermediate learners were around three and a half times more likely to answer the spelling-related questions correctly than the advanced learners.

The Results of the logistic regression analyses for NNES-NNES dyads. For the NNES-NNES dyads, successful uptake and timing were the only two significant variables that entered in the model in the grammar test. The exp (B) of successful uptake was 2.001, meaning that LREs with successful uptake were twice more likely to result in correct test responses than without. Also, the effect of timing was stronger than that of successful uptake, with an exp (B) of 3.030, meaning that if learners were provided with immediate feedback in the turn after a question or a problematic linguistic item was raised, they were three times more likely to answer the corresponding test item correctly than deferred feedback.

Likewise, the same two variables (timing and successful uptake) also entered into the vocabulary test. The exp(B) of successful uptake was 5.672, meaning that LREs with successful uptake were almost six times more likely to result in correct test responses than the ones with unsuccessful uptake. In addition, the exp (B) of timing was 5.236, which means that LREs with immediate feedback were more than five times more likely to result in correct test responses than deferred feedback.

The spelling test resulted in only one significant variable that entered the model: proficiency. The exp (B) of proficiency was 8.615, which means the advanced learners were more almost nine times more likely to answer the spelling-related questions correctly than the low-intermediate learners.

Successful uptake. The fact that successful uptake entered into all models of both grammar- and vocabulary-related tests across the two dyadic types qualifies it as the most prevalent predictor of the learners' subsequent L2 learning in the current study. Two theoretical foundations can be adopted to address the positive correlation between successful uptake and SLA. First, successful uptake permits learners to practice the target forms and thus may help them to transfer their explicit knowledge into implicit knowledge (Ellis et al., 2001a). Second, the pushed output (Swain, 1995), i.e. successful uptake, assists SLA since it forces learners to focus on forms rather than meanings and thus enables them to modify problematic hypotheses about the target forms. Our finding coincides with Loewen's (2005) study in a NS-NNS face-to-face setting and Shekary and Tahririan's (2006) study in a NNES-NNES SCMC setting, in which both research empirically validated the significance of the successful uptake in comparison to the mere presence of uptake. This indicates that

incidental focus on form could be beneficial to learners, especially when learners incorporate the targeted forms into their own production (Ellis et al., 2001a; Lyster & Ranta, 1997).

Proficiency. Proficiency entered into three regression models, making it the second most prevalent predictor of the learners' test responses. Interestingly, proficiency played a different role in different dyadic types.

The effect of proficiency on the NES-NNES dyads. Interactionist research has suggested that the fact that learners negotiate more on lexical than grammatical elements may be related to learners' different proficiency levels (VanPatten, 1990, 1996) and the nature of learner attention during interaction (Pica, 1994; Pica, Lincolin-porter, Paninos, & Linnell, 1996). In the NES-NNES dyads, the low-intermediate learners performed better than the advanced learners on both vocabulary and spelling tests. Similar results on vocabulary (Gass, Svetics, & Lemelin, 2003) and spelling (Canado, 2006) have been reported in previous research.

With respect to the vocabulary test, our finding echoes Gass, Svetics, and Lemelin's (2003) study, in which the lowest proficient (first –year) learners improved significantly on all three linguistic foci (syntax, morphosyntax, and the lexicon), the more proficient (second-year) learners only improved on lexicon, and the advanced (third-year) learners improved on none of the three foci. They concluded that focused attention had more significant effects on the less-proficient students than on the most-proficient students in their study. Therefore, it is suspected that the effect of noticing on the advanced learners in the NES-NNES dyads may not be as salient as it is on the low-intermediate learners within the

same dyadic type, which, in turn, contributes to the difference of vocabulary test performance between the learners of these two proficiency levels.

With respect to the spelling test type, Canado's (2006) study found that NNSs' spelling ability was significantly improved in the free composition through explicit instruction provided by their NS teachers. It is arguable that the spelling-related feedback from the NESs in the current study can be viewed as a kind of "incidental" instruction. In addition, since all of the NES participants are pre-service teachers taking an ESL methods course, they may have a better command of language teaching and a higher level of pedagogical mindset than other NESs who are in disciplines other than education. Even if the above discussed is the case, it still doesn't answer why the low-intermediate learners in the NES-NNES dyads outperformed the advanced learners in the same dyadic type. This issue requires further examination of the data set.

When examining the characteristics of the LREs generated by the NES-NNES dyads in more detail, the low-intermediate learners in the NES-NNES dyads responded to the vocabulary-and spelling-related feedback more than 80% of the time with an uptake or successful uptake move, which is much higher than the 52% of the advanced learners from the same dyadic type. This indicates that the low-intermediate learners were devoting higher levels of awareness/attention to their NES peers' responses in general; higher levels of awareness would result in a higher level of accuracy on subsequent L2 production (Rosa & Leow, 2004). As a result, it is logical to speculate that the low-intermediate learners in the NES-NNES dyads better recalled those targeted lexical items (both vocabulary and spelling) than the advanced learners of the same dyadic type because they integrated the feedback

given by their NS interlocutors into their language production (uptake). This tentative explanation may help to account for the discrepancy of the test performance between the lower-and higher-proficient learners in the NES-NNES in both vocabulary and spelling tests.

The effect of proficiency on the NNES-NNES dyads. In the NNES-NNES dyads, the results of the exp (B) demonstrated that the advanced learners performed much better than the low-intermediate learners in the spelling test. One explanation is that because the advanced learners had a better command of lexical competence (Zareva, Schwanenflugel, & Nikolova, 2005), they were more capable of answering in the spelling test correctly than their low-intermediate peers. This finding also echoes William's (2001) finding, in which higher-proficient learners were more prepared to handle diverse linguistic input from their counterparts (NS teachers) during the negotiation of meaning when compared to lower-proficient learners. Tekmen and Daloglu's (2006) study on incidental vocabulary acquisition also revealed that the advanced NNSs gained significantly more words through reading a text than the intermediate and upper-intermediate NNSs.

In short, the mixed results found on proficiency in the regression models can only be taken as suggestive, implicating that these areas are ripe for further exploration. Our analysis has shown that proficiency, dyadic type, and incidental noticing in SCMC setting interact in complex and complicated ways.

Source. In addition to successful uptake, the variables of source also entered into the regression models of the grammar and vocabulary tests in the NES-NNES dyads. In other words, negotiation of code positively affected learners' noticing and its retention rate than negotiation of meaning. As noted earlier, because most of the EFL classrooms are test-

driven and tend to emphasize micro-level grammatical competence (Bardovi-Harlig & Dornyei, 1998), it is natural for the learners to pay extra attention to the code-related negotiation in order to increase their linguistic accuracy. Bardovi-Harlig and Dornyei's (1998) experimental study explored the extent to which instructed L2 learners of English were aware of differences in learners' and target-language production in grammar and pragmatics. The results showed that EFL learners and their teachers consistently identified and ranked grammatical errors as more serious than pragmatic errors. In addition, Ellis et al. (2001a) found that the source of the majority of focus on form in their observations resulted from negotiation of code (75%) rather than negotiation of meaning (25%). Therefore, given that EFL learners are instructed with heavy emphasis on grammatical competence and accuracy and view grammatical errors to be more serious than pragmatic ones (Bardovi-Harlig & Dornyei, 1998), the results of this study are not surprising. The number of the pragmatic-related LREs in the NES-NNES dyads was much lower than the linguistic-related ones (8 vs. 485).

Type. Another significant variable that entered into the grammar test of the NES-NNES dyads was type, in which the preemptive (learner-initiated) LREs were significantly correlated with the learners' performance on the posttests. A preemptive LRE can be seen as indicating a learner's difficulty with a linguistic item since the learner is raising a query about that item (Loewen, 2002). Some previous studies have also endorsed the importance of preemptive LREs on learners' subsequent learning. For example, Ellis et al. (2001b) examined preemptive focus on form in ESL face-to-face classroom between learners and teachers. They found that in 12 hours of meaning-focused instruction, there were as many

preemptive focus-on-form episodes (FFEs) as reactive FFEs. The majority of the preemptive FFEs were initiated by students, and students were more likely to uptake a form if the FFE was student initiated. Along the same line, Leow's (1998) study also endorsed that learner-centered exposure to morphological forms of the targeted L2 facilitated learners' overall greater capability to digest and reproduce these forms in writing when compared to teacher-centered exposure to the same linguistic forms. Kitade (2000) examined to the potential impact of CMC on L2 learning between NNSs of Japanese. She found many instances of learner-initiated repair and negotiation of meaning in NNS-NNS chats, which suggests that online task-based discussion "facilitates comprehensible and meaning-making interaction, awareness raising, as well as collaborative learning" (p. 162). Smith (2004) also found that learners provided one another with preemptive input, which is rather beneficial in assisting their peers to acquire target forms.

Therefore, learner-initiated LREs appear to be one of the most important potential characteristics to induce noticing and result in long-term memory of the targeted structures. In addition, the reason that preemptive LREs only appeared to be an important variable in the NES-NNES dyads instead of the NNES-NNES dyads may be that NNSs usually view NSs as language authorities and this belief may motivate them to seek more help whenever they need any language-related input. It is, therefore, logical to believe that when LREs are initiated by learners, the subsequent learning is more likely to happen.

*Complexity. C*omplexity was also shown to be a significant factor in affecting the vocabulary test scores of the learners in the NES-NNES dyads, but not in the NNES-NNES dyads. This indicates that complex LREs appeared to be more helpful on producing

vocabulary-related test responses than simple ones when learners were interacting with the NESs as opposed to the NNESs. A complex LRE requires multiple responses and/or uptake moves (Loewen, 2004), and NESs may be more capable of producing long and sophisticated feedback than NNESs do because of their linguistic ability (Pasternak & Bailey, 2004). Similar to our findings, Loewen's (2004) study examined which characteristics (including directness, emphasis, timing, response, uptake, and successful uptake) of incidental focus on form predicted uptake and successful uptake, and the results showed that complexity was one of the LRE characteristics that influenced both the production of uptake and its success. Thus, he concluded that complex LREs involving multiple turns between the teacher and the student were more likely to result in both uptake and successful uptake. Successful uptake was more likely to occur when students focused on linguistic problems that they perceived as important and when they had the chance to negotiate extensively around a problem.

Given that successful uptake is the most prevalent predictor of learners' subsequent learning in the current study and the relationship between complex LREs and successful uptake has empirically proved to be positive, it is logical to contend that complex responses can facilitate learners' retention of the linguistic items contained in the LREs, which coincides with the findings of the current study.

Timing. Finally, timing was also shown to be a powerful predictor of both grammar- and vocabulary-related test items in the NNES-NNES dyads. Generally speaking, the fact that immediate LREs are more effective in promoting learners' noticing and their correct recall of the test items seems intuitive because most focus on form happens immediately after the trigger (Loewen, 2004). Ellis et al. (2001a) also examined the timing of the

feedback in their study, finding that the overwhelming majority of feedback moves were immediate (92%) rather than delayed (8%). In addition, considering the restraint of working memory, immediate treatment is more helpful than deferred treatment in assisting learners to integrate the target forms into their interlanguage (Doughty, 2001) because it occurs at the time when the information is most needed (Doughty & Long, 2003).

However, the findings with regard to the effect of immediate feedback in LREs in the present study contradict those reported in Shekary and Tahririan's (2006) study, in which deferred LREs were roughly one and a third times more likely to lead to correct responses when compared with immediate LREs. They argued that deferred LREs in their study often occurred when learners went through their errors at the end of a task, which drew attention to them explicitly. Although it may not be possible to know whether or not learners in Shekary and Tahririan's study were required to review their chat logs after each session, it is arguable that learners' frequent reviews of the chat logs would potentially blur the distinction between incidental and planned focus-on-form. Since the current research was designed to be a study on incidental noticing and learners were not asked to review their chat logs at the end of each task, deferred LREs wouldn't occur as they do in Shekary and Tahririan's study. Therefore, the contradiction of the effect of timing between Shekary and Tahririan's and the current study may be partially attributed to this methodological difference. Nevertheless, this explanation is speculative and warrants further investigation.

Finally, although immediate feedback was found to be positively correlated with learners' grammar test scores in the NNES-NNES dyads of the current study, similar effect was absent from the NES-NNES dyads even though NSs' proficiency in their first language

may allow them to better control the conversation flow and offer more immediate feedback and comprehensible (modified) input to their NNS counterparts (Long, 1983). When inspecting the relationship between immediate feedback and uptake/successful in detail, the results showed that even though learners in both dyad types provided immediate feedback to their peers around 90% of the time, the learners in the NES-NNES dyads responded to the NESs' immediate feedback 71.9% of the time with an uptake or successful uptake move, which is lower than the 86.1% in the NNES-NNES dyads. This indicates that the learners in the NNES-NNES dyads put more effort into incorporating the received feedback into their language output (uptake and/or successful uptake) which should result in a higher level of accuracy on subsequent L2 production (Rosa & Leow, 2004). This may help to explain why the NESs' immediate feedback did not facilitate their peers' test performance as much as those in the NNES-NNES dyads. Needless to say, more research on the effect of immediate and delayed feedback on SLA in NS-NNS and NNS-NNS interactions is certainly needed.

CONCLUSION AND IMPLICATIONS

This study provides empirical data to suggest that two-way negotiation of meaning in a SCMC setting is useful in promoting learners' noticing and their subsequent language learning. CMC can give rise to real communication by temporally and geographically increasing the opportunities for interaction (Warschauer, 1997) because it allows students from different countries to interact cross-culturally regardless of the time differences. Previous literature has shown that CMC can constitute a more equitable and non-threatening medium for L2 discussion (Beauvois, 1992; Kern, 1995; Warschauer, 1996) and equalize the amount of topic initiation and talk between NSs and NNSs (Schwienhorst, 2004). The

results of the current research also endorses that the SCMC medium can enhance the occurrence of incidental noticing on learners of different proficiency levels and their subsequent L2 learning in both NES-NNES and NNES-NNES dyads, i.e. the task-based language learning framework in SCMC has effectively raised learners' consciousness of the gaps in their IL.

With regard to effects of *learners* of different proficiency levels on the number of LREs produced by the learners, the results showed that (1) in the NES-NNES dyads, no significance difference was found between the low-intermediate and advanced learners; and (2) in the NNES-NNES dyads, the low-intermediate learners produced significantly more LREs than their advanced interlocutors. On the other hand, in terms of the effect of *interlocutors*' proficiency levels on the number of LREs produced by the learners, the results revealed that: (1) the low-intermediate learners in the NES-NNES dyads produced significantly more number of LREs than the low-intermediate learners in the NNES-NNES dyads; and (2) the advanced learners in the NES-NNES dyads also produced significantly more number of LREs than the advanced learners in the NNES-NNES dyads.

The results of the chi-square analyses in the current study revealed that there were no significant differences between the learners of different proficiency levels and their performance on both posttests. This indicates that the learners of different proficiency levels could similarly grasp and retain the forms they noticed during the online negotiations.

Through logistic regression analyses, five characteristics (proficiency, source, type, complexity, and successful uptake) related to LREs have shown to be powerful predictor variables of the NES-NNES dyads. Three variables, including proficiency, timing, and

successful uptake were found to be significant in the NNES-NNES dyads. The most prevalent variable was successful uptake, which has also been theoretically and empirically proven to be the most significant predictor of subsequent L2 learning by previous studies (Ellis et al., 2001a; Loewen, 2004, 2005; Shekary & Tahririan, 2006). As noted earlier, even though proficiency was not found to be an influential factor on learners' performance on the two posttests in both dyadic types, the results of the logistic regression models suggested that proficiency, dyadic type, and incidental noticing in SCMC setting interacted in complex and intricate ways in which the lower-proficient learners of the NES-NNES dyads outperformed their higher-proficient peers both grammar and vocabulary tests whereas the higher-proficient learners of the NNES-NNES dyads outperformed their lower-proficient interlocutors in the spelling test.

All in all, L2 learners can benefit from interacting in a one-to-one two-way communicative negotiation of meaning and form in a SCMC setting irrespective of the dyadic forms and learners' proficiency levels. However, proficiency appears to be a significant factor in some areas, but not in some others. Therefore, no decisive conclusion can be made in this respect. Given that the interrelationships between meaning negotiation, incidental noticing, and proficiency is highly complex, future research on the role of noticing in L2 development through interaction needs to take this into consideration.

The attempt to compare the effect of incidental noticing on both linguistic and sociolinguistic aspects between learners of different proficiency levels in different dyadic forms is another potential contribution that the current study makes to the existing literature of SLA, even though the number of the pragmatics-related LREs generated by the learners

of the present study turned out to be small. Without a doubt, more research is needed in order to further ascertain the interrelations between effects of proficiency and dyadic types on learners' incidental noticing and subsequent L2 learning. In addition, as shown above, negotiation on the linguistic features of grammar, vocabulary, and spelling are much more prevalent than the sociolinguistic aspects of pragmatic. Due to low numbers of LREs on pragmatic aspects of language, the relationships between proficiency and pragmatics still remain unclear in the present study. It is suggested, therefore, to direct learners' attention to negotiation of pragmatics-related topics through some pedagogical instructions. However, such undertaking may obscure the distinction between incidental and planned focus on form. Given that EFL students and teachers tend to pay more attention to grammatical than pragmatic forms and ESL students and their teachers showed the opposite pattern (Bardovi-Harlig & Dornyei, 1998), it would be insightful to compare the amount of pragmatic-related noticing between learners of different proficiency levels and different learning contexts; for example, it would be interesting to see if high-proficient ESL learners who live in the target culture may notice pragmatic aspects of language more than low-proficient ESL learners

Pedagogically, even though noticing does occur in a face-to-face classroom setting (Loewen, 2002, 2005, 2006; Williams, 1999, 201), the interaction between each individual student may be fairly limited compared to one-to-one dyadic interaction through SCMC. In order to provide L2 learners with more opportunities to notice the gaps in their IL and incorporate the feedback they receive into their IL system, practitioners and educators are encouraged to take the unique features of CMC and task-based learning activities into account. Different pedagogical approaches may be needed for learners at different

proficiency levels and for different types of tasks in both online and off-line learning environment, but there is a clear link between proficiency, noticing, and SLA. Given that pragmatic knowledge tends be neglected in EFL contexts at the expense of overly emphasizing grammatical accuracy (Bardovi-Harlig & Dornyei, 1998) and socio-cultural factors can be utilized to promote interaction between interlocutors (Swain, 2001), it is important to offer NNSs legitimate access to both NSs and EFL/ESL learners and incorporate culturally-related elements into the communicative tasks performed by them.

Finally, some limitations need to be noted. First, technological failure could sometimes come into the way, which might result in the missing of the chat logs or the breakdowns of the ongoing discussion between the learners. Second, when the learners in the NES-NNES group had difficulties overcoming the 14-hour time difference to find a time to chat during a given week, they had to move their discussion on that specific task a week before or after. So, the learners could have been overwhelmed while they had to chat twice in a week, and the quality of their discussion could have been negatively affected to some extent. Third, because of the practicality, the L2 participants in the current research were recruited from the same university, and in order to enlarge the gap of the learners' proficiency levels, only 44 out of 156 L2 learners were included. Future research is suggested to recruit more L2 learners from different institutions with wider discrepancy in proficiency levels in order to fully utilize the effect of CMC for both NS-NNS and NNS-NNS dyads. Fourth, as noted, when the whole dataset was divided by the two proficiency levels in the NNES-NNES dyads, the number of LREs of the advance learners was not big enough to run logistic regression analyses. That is the reason that the current study did not compare the logistic regression

models across the four groups of the two dyadic types. Fifth, even though the findings of this study suggest that the more the learners notice, the more they learn,[16] regardless of their proficiency level, their interlocutors' proficiency level, and their dyadic type, researchers should interpret the results with caution. Since the learners' test performance was assessed under a controlled context, their correct test responses may not necessarily equal to SLA. Finally, due to lack of a control group, the results of the current study could not be compared with a control group, which is also an obvious limitation.

SUGGESTIONS FOR FUTURE RESEARCH

There are some suggestions for future research based on the findings of the current study. First, since the current study only included two types of communicative tasks (jigsaw and decision-making), different task types, such as information-gap and problem-solving task, may have different effects on L2 learners and result in different findings (Long, 1996; Crookes & Rulon, 1988; Nakahama et al., 2001; Pica et al., 1993). Therefore, it is suggested that future research on incidental noticing include more varieties of communicative tasks and examine the effect of task type on incidental noticing of learners.

Second, another area obviously worth exploration is to compare the difference in the occurrence of the pragmatic-related LREs and its effect on L2 learners' subsequent learning by employing two different treatment conditions: one planned focus-on-form and the other incidental focus on form. Since only limited amount of pragmatic-related LREs were found in the current study, it is suggested that future research can design tasks that are more

[16] Since there were no differences in the retention rate of the targeted forms across the four groups, a learner who was tested for 20 tailor-made items would be deemed to learn twice as much as a learner who was only tested for 10 tailor-made items. Even though noticing is a prerequisite of SLA, it does not necessarily guarantee learners can transfer the noticed input into their implicit knowledge (Ellis, 1991; Schmidt, 1990; Swain, 1985).

conducive to pragmatic noticing; however, this should proceed with caution because sometimes it is difficult to draw a clear-cut line between incidental and planned focus on form.

Finally, since the current study only included learners of two different proficiency levels, future research can inspect the effect of noticing on (1) learners with a wider range of difference between their proficiency levels, for example, a beginning-advanced dyad or (2) learners of the same proficiency level but at different language learning stages, for example, low-low, intermediate-intermediate, or high-high combinations of proficiency level.

CHAPTER IV

CONCLUSION

SUMMARY

The purpose of this study was to explore Taiwanese English as a Foreign Language (EFL) learners' incidental noticing and their subsequent language learning in relation to learner proficiency level and dyadic type in a text-based CMC environment. More specifically, the study intended to find out (1) whether text-based online discussion would help EFL learners notice the gap in their IL while interacting with their native English speaking or nonnative English speaking interlocutors, and (2) how noticing is associated with L2 learners' dyadic types, proficiency levels, and their subsequent learning in the SCMC setting. Sixty participants were included to form 30 dyads. At random, eight low-intermediate and eight advanced NNESs were paired with 16 NESs to form 16 NES-NNES dyads; another 14 advanced NNESs and 14 low-intermediate NNESs were paired to form 14 mixed-proficiency NNES-NNES dyads. The occurrence of noticing was operationalized by the identification of LREs, and the learners' learning outcome was assessed by two individual tailor-made posttests on four test types (grammar, vocabulary, spelling, and pragmatics).

The results revealed that the SCMS medium could, in general, enhance the occurrence of learners' incidental noticing and their subsequent L2 learning regardless of learners' proficiency levels and dyadic types. No significant differences were found in the amount of the LREs produced by the NES-NNES dyads when compared to the NNES-NNES dyads. With regard to the number of LREs generated by the learners of different proficiency levels,

the results showed that (1) in the NES-NNES dyads, no significant difference was found between the low-intermediate and advanced learners.; and (2) in the NNES-NNES dyads, the low-intermediate learners produced significantly more LREs than their advanced interlocutors. In terms of the effect of interlocutors' proficiency levels on the number of LREs produced by the learners, the results revealed that: (1) the low-intermediate learners in the NES-NNES dyads produced significantly more number of LREs than the low-intermediate learners in the NNES-NNES dyads; and (2) the advanced learners in the NES-NNES dyads also produced significantly more number of LREs than the advanced learners in the NNES-NNES dyads.

With respect to the learners' performance on both posttests, the results of chi-square analyses showed that (1) no significant differences were found both within and across the two dyadic types; and (2) no significant differences were found between learners of different proficiency levels within and across both NES-NNS and NNES-NNES dyads.

Logistic regression analyses revealed that five LRE characteristics (type, source, complexity, proficiency, and successful uptake) in the NES-NNES dyads and three LRE characteristics (proficiency, timing and successful uptake) in the NNES-NNES dyads were shown to be significant predictor variables of the learners' subsequent L2 learning. Successful uptake was the most prevalent predictor variable of the learners' subsequent L2 learning across the two dyadic types. Proficiency appeared to be the second prevalent variable but played a different role in these two dyadic types: (a) in the NES-NNES dyads, the low-intermediate learners significantly outperformed the advanced learners in the same dyadic type in both vocabulary and spelling tests; and (b) in the NNES-NNES dyads, the

advanced learners outperformed their low-intermediate learners in the spelling test. The variables, which had a significantly positive effect on the learners' subsequent L2 learning in the NES-NNES dyads, include code-related, preemptive (learner-initiated), and complex LREs. On the other hand, only one variable (LREs with immediate feedback) had a significantly positive effect on the learners' subsequent L2 learning in the NNES-NNES dyads. Considering the language aspects focused in the LREs, negotiations on the linguistic features of grammar, vocabulary, and spelling were much more prevalent than the pragmatic aspects of language.

In sum, the findings of this dissertation posit the positive effects of incidental noticing in a SCMC setting irrespective of the dyadic types and proficiency levels. More research is needed in order to empirically uncover the complex and intricate interactions among proficiency levels, dyadic types, learners' incidental noticing, and SLA.

PEDAGOGICAL IMPLICATIONS

The pedagogical implications from the findings are listed as follows. First, the effect of incidental noticing is evidenced in a SCMC environment. Secondly, proficiency level should not hinder NNSs from noticing their language problems while interacting with NSs, but less proficient learners of the NNS-NNS mixed proficiency dyads may demonstrate significantly more instances of noticing the gaps in their IL than do their more proficient counterparts. Thirdly, the role of native speaker significantly affects NNSs' ability to notice the gaps in their IL, in which less and more proficient learners produced significantly more LREs while interacting with the NSs than with the different-proficient NNSs. Fourthly, based on the results of logistic regression analyses in current research, it is suggested that learners should

be encouraged to engage in code-related, learner-initiated, and complex negotiations and provide immediate feedback to their peers during negotiation of meaning in both face-to-face and CMC contexts. Fourthly, in order to best promote the effect of uptake, teachers or learners can technically induce their students or conversational interlocutors to produce successful uptake, for example, by guiding them to incorporate the learned knowledge into their subsequent language production immediately after they appear to transfer the input to intake. Finally, as noted, the findings of the current research as well as previous literature on NS-NNS and NNS-NNS interactional effects have suggested that it is not necessarily always better to interact with a NS. While English is regarded as an international language and the notion of "native speaker of English" is challenged a lot (Mckay, 2002), it would also be very beneficial for a NNS to interact with either a NS or a NNS since interacting with a NS has some advantages, and interacting with a NNS has some others.

LIMITATIONS AND FUTURE RESEARCH

There are some limitations in the current research. First, technological failure could sometimes get in the way, which might result in the missing of the chat logs or the breakdowns of the ongoing discussion between the learners. Second, when the learners in the NES-NNES group had difficulties overcoming the 14-hour time difference to find a time to chat during a given week, they had to move their discussion on that specific task a week before or after. So, the learners could have been overwhelmed while they had to chat twice in a week, and the quality of their discussion could have been negatively affected to some extent. Third, because of the practicality, the L2 participants in the current research were recruited from the same university, and in order to enlarge the gap of the learners'

proficiency levels, only 44 out of 156 L2 learners were included. Future research is suggested to recruit more L2 learners from different institutions with wider discrepancy in proficiency levels in order to fully utilize the effect of CMC for both NS-NNS and NNS-NNS dyads. Fourth, as noted, when the whole dataset was divided by the two proficiency levels in the NNES-NNES dyads, the number of LREs of the advance learners was not big enough to run logistic regression analyses. That is the reason that the current study did not compare the logistic regression models across the four groups of the two dyadic types. Fifth, even though the findings of this study suggest that the more the learners notice, the more they learn, regardless of their proficiency level, their interlocutors' proficiency level, and their dyadic type, researchers should interpret the results with caution. Since the learners' test performance was assessed under a controlled context, their correct test responses may not necessarily equal to SLA. Finally, due to lack of a control group, the results of the current study could not be compared with a control group, which is also an obvious limitation.

As for the suggestions for future research, first, since the current study only included two types of communicative tasks (jigsaw and decision-making), different task types, such as information-gap and problem-solving task, may have different effects on L2 learners and result in different findings (Long, 1996; Crookes & Rulon, 1988; Nakahama et al., 2001; Pica et al., 1993). Therefore, it is suggested that future research on incidental noticing include more varieties of communicative tasks and examine the effect of task type on incidental noticing of learners.

Second, another area obviously worth exploration is to compare the difference in the occurrence of the pragmatic-related LREs and its effect on L2 learners' subsequent learning by employing two different treatment conditions: one planned focus-on-form and the other incidental focus on form. Since only limited amount of pragmatic-related LREs were found in the current study, it is suggestive for the future research to design tasks that are more conducive to pragmatic noticing; however, this should be proceed with caution because sometimes it is difficult to draw a clear-cut line between incidental and planned focus on form.

Third, since the current study only included learners of two different proficiency levels, future research can inspect the effect of noticing on (1) learners with a wider range of difference between their proficiency levels, for example, a beginning-advanced dyad or (2) learners of the same proficiency level but at different language learning stages, for example, low-low, intermediate-intermediate, or high-high combinations of proficiency level.

Fourth, even though the findings of the current research indicate that the advanced learners may not benefit as much from interacting the low-intermediate learners than with the NESs, however, it is important to find out if the advanced learners in the NNES-NNES dyads have gained confidence through interacting with their less-proficient learners because the increased level of confidence may have contributed to their overall language proficiency. Since the current study measured learners' improvement on SLA through the identification of LREs and their test performance, it is not possible to capture the nuances or changes of those advanced learners' confidence levels. It is suggested for future research to

qualitatively investigate learners' perceptions on their confidence levels toward the use of L2 through, for example, in-depth interviews.

Lastly, compared to NS-NNS dyads, learners in NS-NNS dyads may have a higher degree of comfort level in working together and dealing with some of the issues of language since they share the same cultural background and mother tongue and their mutual ability to express their voice (Lee, 2004; Varonis & Gass, 1985). Besides, because NNSs were using a foreign language to communicate, any miscommunication could potentially be attributed to either one or both of the interlocutors; therefore, they would be more willing to respond to their interlocutors' corrective feedback without feeling humiliated (Varonis & Gass, 1985). With respect to the relationship between language proficiency and anxiety, Liu (2006) show that the more proficient learners tend to be less anxious while speaking English in class. Therefore, in order to compare the comfort level between learners of different proficiency levels in different dyadic types, it would be insightful for future research to interview learners of different proficient levels in both NS-NNS and NNS-NNS dyads on their perceptions of comfort level and anxiety during their negotiated interactions in SCMC. This issue is especially crucial with respect to the negotiation of pragmatics aspects of language because pragmatics focuses on how one uses the target language instead of mechanical issues. The results of the interviews can be used to provide NNSs better accommodations while engaging in task-based online chats.

REFERENCES

Adams, R. (2003). L2 output, reformulation and noticing: Implications for IL development. *Language Teaching Research, 7*, 347-376.

Arnold, N. (2007). Reducing foreign language communication apprehension with computer-mediated communication: A preliminary study. *System, 35*, 469-486**.**

Bardovi-Harlig, K. (1995). The interaction of pedagogy and natural sequences in the acquisition of tense and aspect. In F. Eckman, D. Highland, P. Lee, J. Milenham & R. Weber (Eds.), *Second language acquisition theory and pedagogy.* (pp. 151-168). Mahwah, N. J.: Erlbaum.

Bardovi-Harlig, K., & Dornyei, Z. (1998). Do language learners recognize pragmatic violations? Pragmatic versus grammatical awareness in instructed L2 learning. *TESOL Quarterly, 32*(2), 233-262.

Beauvois, M. H. (1992). Computer-assisted classroom discussion in the foreign language classroom: Conversation in slow motion. *Foreign Language Annals, 25*, 455-464.

Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning & Technology, 4*(1), 120-136.

Bouton, L. F. (1994). Can NNS skill in interpreting implicature in American English be improved through explicit instruction? – A pilot study. In L. F. Bouton & Y. Kachru (Eds.), *Pragmatics and Language Learning*, Monograph Series, Vol 5 (88-109). Division of English as an International Language Intensive English Institute, University of Illinois at Urbana-Champaign, Urbana, IL.

Branden, K. V. D. (1997). Effects of negotiation on language learners' output. *Language*

Learning, 47,589-636.

Brock, C., Crookes, G., Day, R., & Long, M. H. (1986). The differential effects of corrective feedback in native speaker-nonnative speaker conversation. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 229-236). Rowley, MA: Newsbury House.

Canado, M. L. P. (2006). The effects of explicit spelling instruction in the Spanish EFL classroom: Diagnosis, development and durability. *Language Awareness, 15*(1), 20-37.

Chapelle, C. A. (1998). Multimedia CALL: Lessons to be learned from research on instructed SLA. *Language Learning & Technology, 2*(1), 22-34.

Chapelle, C. A. (1999). Research questions for a CALL research agenda: A reply to Rafael Salaberry. *Language Learning & Technology, 3*(1), 108-113.

Chen, L. (2003). Conversation orientation and cognitive processes: A comparison of U.S. students in initial interaction with native- versus nonnative-speaking partners. *Human Communication Research, 29*, 182-209.

Chen, W. C. (2008). *Noticing in text-based computer-mediated communication: A study of a telecommunication between native and nonnative English speakers.* Unpublished PhD dissertation, Texas A&M University.

Chun, D. (1994). Using computer networking to facilitate the acquisition of interactive competence. *System, 22*, 17-31.

Crookes, G., & Rulon, K. A. (1988). Topic and feedback in native speaker/non-native speaker conversation. *TESOL Quarterly 22*, 675-681.

Cross, J. (2002). 'Noticing' in SLA: Is it a valid concept? [Electronic Version] *TESL-EJ, 6*(3). Retrieved December, 10, 2007 from http://www-writing.berkeley.edu/TESL - EJ/e j23 / a2.html.

Doughty, C. (2001). Cognitive underpinnings of focus on form. In P. Robinsion (Ed.), *Cognition and second language instruction* (pp. 206-257). New York: Cambridge University Press.

Doughty, C., & Long, M. (2003). Optimal psycholinguistic environments for distance foreign language learning. *Language Learning & Technology, 7*, 50-80.

Ellis, R. (1997). *SLA research and language teaching*. Oxford: Oxford University Press.

Ellis, R. (2001). Introduction: Investigating form-focused instruction. *Language Learning, 51*, 1-46.

Ellis, R., Basturkmen, H., & Loewen, S. (2001a). Learner uptake in communicative ESL lessons. *Language Learning, 51*, 281-318.

Ellis, R., Basturkmen, H., & Loewen, S. (2001b). Preemptive focus on form in the ESL classroom. *TESOL Quarterly, 35*, 407-432.

Ellis, R., Basturkmen, H., & Loewen, S. (2002). Doing focus-on-form. *System, 30*, 419-432.

Ellis, R., Loewen, S., & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition, 28*, 339-368.

Eslami-Rasekh, Z., Eslami-Rasekh, A., & Fatahi, A. (2004). The effect of explicit metalingulistic instruction on the speech act awareness of advanced EFL students. *TESL-EJ, 8*(2), 1-12.

Fortune, A. (2005). Learners' use of metalanguage in collaborative form-focused L2 output tasks. *Language Awareness, 14*(1), 21-38.

Fotos, S. S. (1993). Consciousness raising and noticing through focus on form: Grammar task performance versus formal instruction. *Applied Linguistics, 14*, 385-407.

Fukuya, Y. & Zhang, Y. (2002). Effects of recasts on EFL learners' acquisition of pragmalinguistic conventions of request. *Second Language Studies, 21*(1), 1-47.

Gaies, S. J. (1982). Native speaker-nonnative speaker interaction among academic peers. *Studies in Second Language Acquisition, 5*, 74-81.

Gass, S. (1997). *Input, interaction, and the second language learner*. Mahwah, NJ: Lawrence Erlbaum.

Gass, S., Svetics, I., & Lemelin, S. (2003). Differential effects of attention. *Language Learning, 53*, 497-545.

Gass, S., & Varonis, E. M. (1991). Miscommunication in nonnative speaker discourse. In N. Coupland (Ed.), *"Miscommunication" and problematic talk* (pp. 121-145). Newbury Park, CA: Sage Publications.

Gass, S., & Varonis, E. M. (1994). Input, interaction, and second language production. *Studies in Second Language Acquisition, 16*, 283-302.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2 ed.). New York: Wiley-Interscience.

House, J. (1996). Developing pragmatic fluency in English as a foreign language: Routines and metapragmatic awareness. *Studies in Second Language Acquisition, 18*, 225-253.

Hudson, J. M., & Bruckman, A. (2001). *Effects of CMC on student participation patterns in a foreign language learning environment*. Paper presented at the Proceedings of Human Factors in Computing Conference, Seattle, WA.

Hulstijn, J. H. (2001). Intentional and incidental second language vocabulary learning: A reappraisal of elaboration, rehearsal and automaticity. In P. Robinsion (Ed.), *Cognition and second language instruction* (pp. 258-286). New York: Cambridge University Press.

Iwashita, N. (2001). The effect of learner proficiency on interactional moves and modified output in nonnative-nonnative interaction in Japanese as a foreign language. *System, 29*, 267-287.

Iwashita, N., & Oliver, R. (2003). Chat-line interaction and negative feedback. *Australian Review of Applied Linguistics, 17*, 60-73.

Izumi, S. (2002). Output, input enhancement and the noticing hypothesis. *Studies in Second Language Acquisition, 24*, 541-577.

Izumi, S., & Oliver, R. (2003). Chat-line interaction and negative feedback. *Australian Review of Applied Linguistics, 17*, 60-73.

Jiang, W., & Ramsay, G. (2005). Rapport-building through CALL in teaching Chinese as a foreign language: An exploratory study. *Language Learning & Technology, 9*(2), 47-63.

Kasper, G. (1992). Pragmatic transfer. *Second Language Research, 8*(3), 203-231.

Kasper, G., & Rose, K. R. (1999). Pragmatics and SLA. *Annual Review of Applied Linguistics, 19*, 81-104.

Kasper, G.. & Rose, K. R. (2002). Individual differences in L2 pragmatic development. *Language Learning, 52:* s1, 275-303.

Kern, R. G. (1995). Restructuring classroom interaction with networked computers: Effects on quantity and characteristics of language production. *The Modern Language Journal, 79*, 457-476.

Kim, I.-O. (2000). Relationship of onset age of ESL acquisition and extent of informal input to appropriateness and nativeness in performing four speech acts in English: A study of native Korean adult speakers of ESL. (Doctoral dissertation, New York University, 2000). *Dissertation Abstracts International, 61*, 1265.

Kitade, K. (2000). L2 learners' discourse and SLA theories in CMC: Collaborative interaction in interact chat. *Computer-Assisted Language Learning, 13*(2), 143-166.

Kitade, K. (2005). *Interactional features of asynchronous computer-mediated communication for language learning : From cognitive and sociocultural perspectives.* Unpublished doctoral Dissertation, University of Hawaii, Honolulu.

Krashen, S. (1981). *Second language acquisition and second language learning*. Oxford: Pergamon.

Kung, S. C. (2002). A framework for successful key-pal programs in language learning. [Electronic Version]. *CALL-EJ Online, 3*. Retrieved December, 10, 2007 from http://elec.ritsumei.ac.jp/english/callejonline/6-2/SCKung.htm.

Lai, C., & Zhao, Y. (2006). Noticing and text-based chat. *Language Learning & Technology, 10*(3), 102-120.

Lee, L. (2004). Learners' perspectives on networked collaborative interaction with native speakers of Spanish in the US. *Language Learning & Technology, 8*(1), 83-100**.**

Lee, L. (2008). Focus-on-form through collaborative scaffolding in expert-to-novice online interaction. *Language Learning & Technology, 12*(3), 53-72.

Leech, G. (1983). *Principles of pragmatics.* London: Longman.

Leow, R. P. (1998). The effects of amount and type of exposure on adult learners' L2 development in SLA. *The Modern Language Journal, 82*, 49-68.

Levy, M., & Stockwell, G. (2006). *CALL dimensions: Options and issues in computer-assisted language learning*. Mahwah, NJ: Lawrence Erlbaum Associates.

Lier, L., & Matsuo, N. (2000). Varieties of conversational experience: Looking for learning opportunities. *Applied Language Learning, 11*, 265-287.

Liu, M. (2006). Anxiety in Chinese EFL students at different proficiency levels. *System, 34*, 301-316.

Loewen, S. (2002). *The occurrence of effectiveness of incidental focus on form in meaning-focused ESL lessons.* Unpublished PhD dissertation, University of Auckland.

Loewen, S. (2003a). Variation in the frequency and characteristics of incidental focus on form. *Language Teaching Research, 7*, 315-345.

Loewen, S. (2003b). The effectiveness of incidental focus on form in meaning-focused ESL lessons. *New Zealand Studies in Applied Linguistics, 9*(1), 63-83.

Loewen, S. (2004). Uptake in incidental focus on form in meaning-focused ESL lessons. *Language Learning, 54*(1), 153-188.

Loewen, S. (2005). Incidental focus on form and second language learning. *Studies in Second Language Acquisition, 27*, 361-386.

Loewen, S., & Erlam, R. (2006). Corrective feedback in the chatroom: An experimental study. *Computer-Assisted Language Learning, 19*(1), 1-14.

Loewen, S. & Philp, J. (2006). Recasts in the adult English L2 classroom: Characteristics, explicitness, and effectiveness. *The Modern Language Journal, 90*, 536-556.

Long, M. H. (1981). Questions in foreigner talk discourse. *Language Learning, 31*, 135-157.

Long, M. H. (1983). Native speaker/non-native speaker conversation and the negotiation of comprehensible input. *Applied Linguistics, 4*, 126-141.

Long, M. H. (1991). Focus on form: A design feature in language teaching methodology. In D. C. K. de Bot, R. Gnsberg & C. Kramsch (Eds.), *Foreign language research in cross-cultural perspective* (p. 39-52). Amsterdam: Benjamins.

Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). San Diego, CA: Academic Press.

Long, M.H. & Porter, P.A. (1985). Group work, interlanguage talk and second language acquisition. *TESOL Quarterly 19*, 207-227.

Long, M. H., & Porter, P. A. (1998). Group work, interlanguage talk, and second language acquisition. *TESOL Quarterly, 19*, 207-227.

Long, M. H., & Robinson, P. (1998). Focus on form: Theory, research and practice. In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition.* (pp. 15-41). New York: Cambridge University Press.

Lyster, R. (1994). The effect of functional-analytic teaching on aspects of French immersion students' sociolinguistic competence. *Applied Linguistics, 15*, 263-287.

Lyster, R. (1998). Negotiation of form, recasts, and explicit correction in relation to error and learner repair in immersion classrooms. *Language Learning, 48*, 183-218.

Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition, 20*, 51-81.

Mackey, A., Oliver, R., & Leeman, J. (2003). Interactional input and the incorporation of feedback: An exploration of NS-NNS and NNS-NNS adult and child dyads. *Language Learning, 53*, 35-66.

Martinez-Flor, A. & Fukuya, Y. J. (2005). The effects of instruction on learners' production of appropriate and accurate suggestions. *System, 33*, 463-480.

Matsumura, S. (2003). Modelling the relationships among interlanguage pragmatic development, L2 proficiency, and exposure to L2. *Applied Linguistics, 24*, 465-91.

McGroarty, M. (1990). Input, interactions, and the limits of interaction in classroom research: Comments on "Can foreigners do foreigner talk?" *Texas Papers in Foreign Language Education, 1*, 289-293.

Mckay, S. L. (2002). *Teaching English as an international language*. New York: Oxford University Press.

Morris, F. (2005). Child-to-child interaction and corrective feedback in a computer mediated L2 class. *Language Learning & Technology, 9*(1), 29-45.

Murphy, S. A. (2002). *On the role of input through songs, reading, and film: A test of Schmidt's Noticing Hypothesis*. Paper presented at the 2002 Symposium on

Investigating Adult L2 Learners' Response to Input, Columbia University. Retrieved October 4, 2003 from http://www.tc.columbia.edu/Academic/TESOL/Han/adv.slafinal paper.doc.

Nakahama, Y., Tyler, A., & Lier, L. V. (2001). Negotiation of meaning in conversational and information gap activities: A comparative discourse analysis. *TESOL Quartely, 35*, 377-405.

Oliver, R. (1995). Negative feedback in child NS-NNS conversation. *Studies in Second Langauge Acquisition, 17*, 459-481.

Park, K. J., Nakano, M., & Kim, S. (2003). A study on interactions between nonnative speakers with different L1s. *Pan-Pacific Association of Applied Linguistics, 7*(1), 59-75.

Pasternak, M., & Bailey, K. M. (2004). Preparing nonnative and native English-speaking teachers: Issues of professionalism and proficiency. In L. D. Kamhi-Stein (Ed.), *Learning and teaching from experience: Perspectives on nonnative English-speaking professionals*. (pp. 155-175). Ann Arbor: The University of Michigan Press.

Pellettieri, J. (1999). *Why-talk? Investigating the role of task-based interaction through synchronous network-based communication among classroom learners of Spanish.* Unpublished PhD Dissertation, University of California at Davis.

Pellettieri, J. (2000). Negotiation in cyberspace: The role of chatting in the development of grammatical competence. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice*. (pp. 59-86). Cambridge: Cambridge University Press.

Philp, J. (2003). Constraints on "noticing the gap." *Studies in Second Language Acquisition, 25*, 99-126.

Pica, T. (1988). Interlanguage adjustments as an outcome of NS-NNS negotiated interaction. *Language Learning, 38*, 45-73.

Pica, T. (1994). Research on negotiation: What does it reveal about second-language learning conditions, processes, and outcomes? *Language Learning, 44*, 493-527.

Pica, T., Holliday, L., Lewis, N., & Morgenthaler, L. (1989). Comprehensible output as an outcome of linguistic demands on the learner. *Studies in Second Language Acquisition, 11*, 63-90.

Pica, T., Kanagy, R., & Falodun, J. (1993). Choosing and using communication tasks for second language instruction and research. In S. Gass (Ed.), *Tasks and language learning: Integrating theory and practice* (pp. 9-33). Clevedon, Avon, England: Multilingual Matters.

Pica, T., Lincoln-Porter, F., Paninos, D., Linnell, J. (1996). Langauge learners' interaction: How does it address the input, output, and feedback needs of L2 learners? *TESOL Quarterly, 30*, 59-84.

Polio, C., & Gass, S. M. (1998). The role of interaction in native speaker comprehension of nonnative speaker speech. *The Modern Language Journal, 82*, 308-319.

Polio, C., Gass, S., & Chapin, L. (2006). Using simulated recall to investigate native speaker perceptions in native-nonnative speaker interaction. *Studies in Second Language Acquisition, 28*, 237-267.

Porter, P. (1983). *Variations in the conversations of adult learners of English as a function of the proficiency level of the participants.* Unpublished PhD dissertation, Stanford University.

Rosa, E. M., & Leow, R. P. (2004). Awareness, different learning conditions, and second language development. *Applied Psycholinguistics, 25*, 269-292.

Rose, K. R. (2005). On the effects of instruction in second language pragmatics. *System, 33*, 385-399. In K. R. Rose & G. Kasper (Eds.), *Pragmatics in language teaching* (pp. 145-170). Cambridge: Cambridge University Press.

Rulon, K. A., & McCreary, J. (1986). Negotiation of content: Teacher-fronted and small-group interaction. In R. R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 182-199). Rowley,MA: Newbury House.

Salaberry, M. R. (2000). L2 morphosyntactic development in text-based computer-mediated communication. *Computer-Assisted Language Learning, 13*, 5-27.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*, 129-158.

Schmidt, R. (1993). Consciousness, learning, and interlanguage pragmatics. In G, Kasper & S. Blum-Kulka (Eds.), *Interlanguage pragmatics* (pp. 21-42). New York: Oxford University Press.

Schmidt, R. (1995). Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning. In R. Schmidt (Ed.), *Attention and awareness in foreign language learning* (Technical Report 9, pp. 1-63). Honolulu: University of Hawaii, Second Language Teaching and Curriculum Center.

Schmidt, R. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). New York: Cambridge University Press.

Schmidt, R., & Frota, S. (1986). Developing basic conversational ability in a second language: A case study of an adult learner of Portuguese. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 237-326). Rowley, MA: Newbury.

Schwienhorst, K. (2004). Native-speaker/non-native-speaker discourse in the MOO: Topic negotiation and initiation in a synchronous text-based environment. *Computer-Assisted Language Learning, 17*, 35-50.

Sharwood-Smith, M. (1991). Speaking to many minds': On the relevance of different types of language information for the L2 learner. *Second Language Research*, *7*(2), 118-132.

Shehadeh, A. (1999). Non-native speakers' production of modified comprehensible output and second language learning. *Language Learning, 49*, 627-675.

Shin, D. S. (2006). ESL students' computer-mediated communication practices: Context configuration. *Language Learning & Technology, 10*(3), 65-84.

Shekary, M., & Tahririan, M. H. (2006). Negotiation of meaning and noticing in text-based online chat. *The Modern Language Journal, 90*, 557-573.

Siegal, M. (1996). The role of learner subjectivity in second language sociolinguistic competency: Western women learning Japanese. *Applied Linguistics, 17*, 356-382.

Smith, B. (2003a). Computer-mediated negotiated interaction: An expanded model. *The Modern Language Journal, 87*, 38-57.

Smith, B. (2003b). The use of communication strategies in computer-mediated communication. *System, 31*, 29-53.

Smith, B. (2004). Computer-mediated negotiated interaction and lexical acquisition. *Studies in Second Language Acquisition, 26*, 365.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Maden (Eds.), *Input in second language acquisition.* (pp. 235-252). Rowley, MA: Newbury House.

Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.)*, Principle and practice in applied linguistics.* (pp. 125-144). Oxford: Oxford University Press.

Swain, M. (1998). Focus on form through conscious reflection. In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition.* (pp. 64-81). Cambridge: Cambridge University Press.

Swain, M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 97-114). Oxford: Oxford University Press.

Swain, M. (2001). Content specification and validating inferences drawn from test scores. *Language Testing, 18*, 273-302.

Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *The Modern Language Journal, 82*, 320-337.

Takahashi, S. (2001). The role of input enhancement in developing pragmatic competence. In K. R. Rose & G. Kasper (Eds.), *Pragmatics in language teaching* (pp. 171-199). Cambridge: Cambridge University Press.

Takahashi, S. (2005). Noticing in task performance and learning outcomes: A qualitative analysis of instructional effects in interlanguage pragmatics. *System, 33*, 437-461.

Tekmen, E. A. F., & Daloglu, A. (2006). An investigation of incidental vocabulary acquisition in relation to learner proficiency level and word frequency. *Foreign Language Annals, 39*(2), 220-243.

Torlakovic, E., & Brook, A. (2002). *The role of consciousness in second language acquisition*. Paper presented at the Proceedings of the Twenty-fourth Annual Conference of the Cognitive Science Society.

Toyoda, E., & Harrison, R. (2002). Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning & Technology, 6*(1), 82-99.

Tudini, V. (2003). Using native speaker in chat. *Language Learning & Technology, 7*(3), 141-159.

Tudini, V. (2007). Negotiation and intercultural learning in Italian native speaker chat rooms. *The Modern Language Journal, 91*, 576-601.

VanPatten, B. (1990). Attention to form and content in the input: An experiment in consciousness. *Studies in Second Language Acquisition, 12*,287-301.

VanPatten, B. (1996). *Input processing and grammar instruction*. Norwood, NJ: Ablex.

Varonis, E. M., & Gass, S. (1985). Non-native/non-native conversations: A model for negotiation of meaning. *Applied Linguistics, 6*(1), 71-90.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal, 13(2&3)*, 7-25.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal, 81*, 470-481.

Webb, S. (2008). Receptive and productive vocabulary sizes of L2 learners. *Studies in Second Language Acquisition, 30*, 79-95.

Williams, J. (1999). Learner-generated attention for form. *Language Learning, 49*, 583-625.

Williams, J. (2001). The effectiveness of spontaneous attention to form. *System, 29*, 325-340.

Yule, G., & Powers, M. (1994). Investigating the communicative outcome of task-based interaction. *System, 22*, 81-91.

Zareva, A., Schwanenflugel, P., & Nikolova, Y. (2005). Relationship between lexical competence and language proficiency. *Studies in Second Language Acquisition, 27*, 567-595.

APPENDIX A

TASK 1

Task 1: Jigsaw Task (Discussion Topic: Self-Value)

Overview of this Activity:

In this task, we'll learn about self-value in different cultures. This first picture is the cover of the Time Magazine. As you can see, YOU were chosen to be THE MOST IMPORTANT PERSON OF YEAR 2008 on TIME Magazine cover. Wow, do you think you deserve this title? Obviously, you are not as famous as Oprah or Bill Gates, but why do you think Time Magazine editors would make the decision like that?

Step 1. Take a look at these pictures here. What are these pictures telling you? You've seen some of them before. Pick the ones that you recognize and explain them to your partner.

The first set of pictures is for:

1. Taiwanese students in the NNS-NS dyads
2. Low-intermediate Taiwanese students in the NNES-NNES dyads.

The first set of pictures is for:

1. American students in the NNS-NS dyads
2. Advanced Taiwanese students in the NNES-NNES dyads.

Step 2: Answer the following questions and exchange the answers with your partner.

Question 1: Am I an important person to the world? Why or why not?
Question 2: What is it about me that I am proud of?

Step 3: After reading your keyapl's answers, try to respond to the following questions in your next message to him/her:

Part 1: Which part of his/her answer confuses you and needs further explanations?
Part 2: Which part of his/her answer that you find particularly interesting, and why?

Step 4: By now you should see the differences between you and your partner. Well, let's pause and think for a second. Carefully consider all these questions and reply to your partner:

Question 1: Is there such a big difference between the answers from you two?
Question 2: Is the difference caused by cultural differences, or something else?

Step 5: The Taiwanese keypal will draft a 150-200 word summary based on the key points of the discussions and submit it to your instructor

APPENDIX B

TASK 2

Learning Task 2: Decision-making (Discussion topic: Save the World)

From our discussions in the last task, you know how important you are and how you can affect the people around you. But now, there is some bigger crisis in our life that is developing silently everyday! Cold facts: why do you think you'd need to turn on the heater in April in Texas? Why would it snow in Dallas in March? Why the summer in Taiwan is getting hotter and hotter each year and more and more mosquitoes are bugging everyone? What happened when the abnormal weather and the related disasters are occurring here and there in the different regions of the world all the time? Something is not right! What is the problem? In task 2, you will find out the possible cause of the crisis and make a critical decision.

Step 1: Reality check

By now you might have figured this out with your partner; it is all about GLOBAL WARMING.

In this task, you and your partner will do a reality check on how bad natural environment has become around us. Then you will make a decision on what you would like to do for you, yourself, your community, your people, the earth, and most importantly your future children. Look at what has happened to U.S. and Taiwan!

Flooding and drought in the summers of Taiwan

Hurricane Katrina &
Drought in Matthiessen State Park (IL)

Step 2. Watch a web-video from abc News and find out how bad things are right now and in few years.

Step 3: Make a commitment and put it into action.

Take a look at some solutions offered on http://www.liveearth.org/crisis_solutions.php
Make a decision together with your partner by choosing 3 things that both of you are willing to do as your commitment. From the 5 dimensions listed on the webpage: at home, shopping, on the job, transportation, and community. Commit 3 changes you both agree to make together for at least 3 days. During this task, you two will share how and why you two should or shouldn't make this commitment and stick to it.

Step 4: Final Product

In a 150~200 word action report, Taiwanese partners will
1) List the 3 changes as your 1-week commitment to save the Earth.
2) Describe your experiences of putting these things into actions in the past week.
3) Submit your task product to your instructor.

VITA

Name:	Wan-Tsai Kung
Address:	Department of Teaching, Learning and Culture, Texas A&M University, 308 Harrington Tower, MS 4232, College Station, TX 77843-4232
Email Address:	tonykung@tamu.edu ; kung_jun@gmail.com
Education:	B.A., Sociology, Tunghai University, Tachiung, Taiwan, 1997 M.A., Teaching English as Second Language, Oklahoma City University, Oklahoma City, 2001 Ph.D, Curriculum and Instruction, Texas A&M University, College Station, 2009
Conference Presentations:	Sukovic, M., Chen, W. C., & Kung, W. T. (2008). *Communicating across cultures: Cultural empowerment at the Texas A&M writing center.* Paper presented at the 18th Annual South Central Writing Centers Association Conference, Norman, Oklahoma, 6-8, March. Kung, W. T., Yeh, Y. F., & Kung, T. W. (2007). *An analysis of high school textbooks in Taiwan: The speech act of requests*. Paper presented at the 8th Annual Curriculum and Pedagogy Conference, Marble Falls, Texas, 3-7, October. Yeh, Y. F., & Kung, W. T. (2007). *What about the Identification?: Ethnic identity and language shift in heritage language learning.* Paper presented at the 8th Annual Curriculum and Pedagogy Conference, Marble Falls, Texas, 3-7, October. Kung, W. T. (2007). *The successes and problems of Taiwanese and mainland Chinese international students majoring in hard science and business while studying in the United States*. Paper presented at the 6th Annual National Association for Multicultural (NAME) conference, College Station, Texas, 20-21, April. Kung, W. T., Huang, C. W., & Yeh, Y. F. (2007). *An analysis of junior high school textbooks in Taiwan: The speech act of requests.* Paper presented at the 6th Annual National Association for Multicultural (NAME) conference, College Station, Texas, 20-21, April.